University of Alberta Library
0 1620 2666130 4

88D-033

Ex libris
universitatis
albertaeasis

QUAECUMQUE VERA

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: DEBORAH ANN KERR

TITLE OF THESIS: HYPNOSIS UTILIZING ERICKSONIAN TECHNIQUES IN THE TREATMENT OF ESSENTIAL HYPERTENSION

DEGREE: DOCTOR OF PHILOSOPHY

YEAR THIS DEGREE GRANTED: Spring, 1988

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

[redacted]

Date: April 18, 1988

There is More Light Here

A man saw Nasrudin searching for something on the ground. "What have you lost, Mulla?" he asked.

"My key," said the Mulla.

So the man went down on his knees too, and they both looked for it. After a time, the other man asked: "Where exactly did you drop it?"

"In my own house."

"Then why are you looking here?"

"There is more light here than inside my own house."

Shah, Idries (1972). The exploits of the incomparable Mulla Nasrudin. NY: Dutton, pp. 26-27.

THE UNIVERSITY OF ALBERTA

HYPNOSIS UTILIZING ERICKSONIAN TECHNIQUES IN THE TREATMENT OF ESSENTIAL HYPERTENSION

by

DEBORAH ANN KERR

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN
COUNSELLING PSYCHOLOGY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

SPRING, 1988

89-330

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled HYPNOSIS UTILIZING ERICKSONIAN TECHNIQUES IN THE TREATMENT OF ESSENTIAL HYPERTENSION submitted by DEBORAH ANN KERR in partial fulfilment of the requirements for the degree of DOCTOR OF PHILOSOPHY in COUNSELLING PSYCHOLOGY.

Date: April 7, 1988

DEDICATION

To my sons, Ian and Peter.

ABSTRACT

This study examines the effectiveness of hypnosis utilizing the techniques developed by Milton H. Erickson, M.D., as a treatment for individuals with essential hypertension. Twelve volunteers with hypertension, most of whom were medicated, participated in one of two approximately 12 week treatment programs. The research methodology employed was a single-case experimental design, and thus each individual acted as his/her own control. Specifically, a multiple baseline design across individuals was used. The treatment program involved 3 phases: a baseline monitoring phase in which pre-treatment blood pressure levels were assessed; a trance training phase which involved individual hypnosis sessions with the therapist/researcher; and a home practice phase, in which each participant listened to a 30 minute hypnosis audiotape daily. After completion of the treatment, a followup was conducted once a month for a three month period. To assess individual change, both physiological and self report data were obtained.

The results of the study indicated that, for 11 of the 12 participants, clinically significant reductions in systolic and diastolic blood pressure were achieved. These reductions were generally maintained during the followup period. Within the trance sessions, blood pressure became highly variable, often increasing over the individual's pre-treatment level. Subjective changes were

noted by many of the participants in their abiilty to relax and cope with stress, and in their sense of well-being. By the end of the treatment program, many of the participants seemed to take a more active role in their own physical and mental health.

Therapeutically, the treatment appeared to be most helpful for individuals whose blood pressure was elevated despite their being on hypertension medication. Compared to the results of previous studies using a standardized and direct model of hypnosis, Ericksonian hypnosis was found to be more consistently effective in the reduction of blood pressure for individuals with essential hypertension.

ACKNOWLEDGEMENTS

I wish to express my appreciation to each of the 12 people involved in this study, for their time, interest, and curiosity.

Also, many thanks to my thesis supervisor Dr. D. Sawatzky, supervisory committee members Dr. D. Sobsey and Dr. D. Young, and committee member Dr. D. Forrest, for their input and support, and to Dr. K. Cairns, for consenting to serve as my external examiner.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	Overview of the Problem	3
	Hypnosis in the Treatment of Hypertension	4
	The Treatment Model	6
	The Research Study	8
	Contributions of the Study	10
	Overview of Chapters	10
II.	A REVIEW OF THE RELATED LITERATURE	12
	The Physiology of Blood Pressure and Hypertension	12
	Psychological Treatments	14
	Hypnosis Studies	21
	The Ericksonian Model of Hypnosis	27
III.	METHOD	34
	Research Design	34
	Study Participants	35
	Research Variables	39
	Treatment Procedure	42
	Sequencing of Treatment	46
	Analysis of Data	47

CHAPTER PAGE

IV. RESULTS..... 51
Physiological Change..... 51
Between Session Change..... 51
In Session Change..... 65
Self Report Change..... 66
General Trends..... 87
Maintenance of Change..... 88

V. DISCUSSION..... 92
Possible Active Ingredients..... 92
A Proposed Model..... 103
Relative Effectiveness of the Treatment..... 105
Therapeutic Significance of the Results..... 108
Generalizability..... 110
Replication of the Treatment Method..... 111
Maintenance of Treatment Effects..... 112
Limitations of the Study..... 112
Suggestions for Further Research..... 113
Conclusions..... 114

BIBLIOGRAPHY..... 117

CHAPTER PAGE

APPENDICES..... 127

APPENDIX A: NEWSPAPER ADVERTISEMENTS..... 128

APPENDIX B: TELEPHONE SCREENING FORM..... 130

APPENDIX C: TREATMENT INFORMATION SHEET..... 134

APPENDIX D: RESEARCH PERMISSION FORM..... 139

APPENDIX E: BACKGROUND INFORMATION FORM..... 141

APPENDIX F: PHYSICIAN APPROVAL FORM..... 145

APPENDIX G: SAMPLE OF INDIRECT SUGGESTIONS..... 147

APPENDIX H: HOME PRACTICE FORM..... 154

APPENDIX I: TREATMENT EVALUATION FORM..... 156

LIST OF TABLES

Table	Description	Page
1	Characteristics of Study Participants	38
2	Means and Differences Between Phases of Treatment	63
3	Blood Pressure Reductions by Type of Medication	64
4	In Session Change	67
5	Followup Blood Pressure Readings	89

LIST OF FIGURES

Figure		Page
1.	Changes in systolic blood pressure (SBP): Program 1.	52
2.	Changes in systolic blood pressure (SBP): Program 2.	54
3.	Changes in diastolic blood pressure (DBP): Program 1.	56
4.	Changes in diastolic blood pressure (DBP): Program 2.	58

CHAPTER I

INTRODUCTION

Using the mind to heal the body is a practice as old as recorded history. Yet, in our post-industrial society, healing to most people is medicine, experts, and technology. The mind/body split has grown even wider; physicians and specialists treat the 'body', psychiatrists and psychologists treat the 'mind'. Healing has become the domain of experts, into whose hands we entrust our emotional and physical health.

As Ornstein (1972) has pointed out, the medical system is largely directed toward the treatment of diseases, not toward individual responsibility for health. In this system, health problems are thought to be controlled from the 'outside' with drugs, rather than by attempting to use the individual's innate capacity for self-regulation.

This primarily external approach is used in the treatment of one of the major health problems of our times, that of essential hypertension, or high blood pressure. Essential hypertension is a disease of unknown etiology in which the regulating systems which keep blood pressure within normal limits malfunction, or are out of balance. The most widely-used and accepted treatment is drug therapy, which controls rather than cures hypertension. Indeed, this treatment has had recognized success in reducing morbidity, disability, and mortality (Charlesworth et al., 1984). This

external focus may be partly due to the way the autonomic nervous system, which regulates physiological functions such as blood pressure, is conceptualized in the western medical tradition. This system is generally thought to be outside of one's voluntary control and is, in fact, often referred to as the 'involuntary' nervous system. Thus the need for an external agent to control and regulate blood pressure would be apparent. However, the strong research and clinical emphasis on external treatments has been a bit unbalanced, neglecting approaches which have been found effective in teaching individuals to self-regulate their own blood pressure.

In various Eastern disciplines such as Yoga and Zen, it has long been recognized that internal bodily processes such as heart rate, skin temperature, and blood pressure, can be altered using various techniques. In recent years some of these techniques have been incorporated and studied in Western psychological treatments of essential hypertension, including biofeedback, relaxation exercises, meditation, and hypnosis. Not only have these been found to reduce blood pressure to varying degrees, but they return some responsibility to the individual, who plays a much more active role in his/her own health and healing.

In this research study, the use of hypnosis as a psychological treatment for essential hypertension is examined. The model of hypnosis used is a relatively new and innovative model developed by the late Milton H. Erickson, M.D. In this approach, the therapist

acts as a facilitator, teaching individuals to activate their own natural self-regulating and healing processes.

Overview of the Problem

Hypertension has been described as a disease of immense epidemiologic importance as "it is common, its consequences can be serious, and it is responsible for a great deal of morbidity and mortality" (Health and Welfare Canada, 1981, p. 144). In Canada, it has been estimated that about 4 to 4.6 million people are suffering from this disease, when hypertension is defined as $\geq$ 90 mmHg diastolic and $\geq$ 140 mmHg systolic (Health and Welfare Canada, 1980; 1981). Many more males than females have hypertension.

Extensive, long-term medical studies have found that:

1. High blood pressure is the single most important cause of strokes.
2. One-third of all heart disease is caused by high blood pressure.
3. The greater the blood pressure at any age, the greater the risk of death.
4. High blood pressure is a major cause of disease of the heart, brain, kidneys, and eyes (Rees, 1980).

The disease has been referred to as a 'silent killer' because most hypertensive individuals appear healthy and experience few symptoms (Zahourek, 1985).

One of the disadvantages of pharmacologic treatment is that, once an individual's blood pressure is controlled through medication, it is often assumed he or she will require drug therapy for life. This can mean that young and middle-aged adults must remain on medication for 30 or 40 years, and often with side-effects of fatigue, drowsiness, depression or sexual dysfunction. Not surprisingly, many people become unwilling to take medication. For example, in Canada it has been estimated that one in five people who know their blood pressure is elevated do not take medication (Health and Welfare Canada, 1981). Also, for some individuals, drug treatment alone cannot adequately reduce their blood pressure level to within normal limits.

Hypnosis in the Treatment of Hypertension

Despite the widespread use of hypnosis in the treatment of various psychosomatic disorders (Wilkinson, 1981), there have been few studies examining the effectiveness of hypnosis in the treatment of essential hypertension. This is somewhat surprising as hypnosis has long been considered an effective means of modulating the autonomic nervous system (Rossi, 1986) and, unlike many psychological treatments, aims at directly accessing and utilizing unconscious processes. For these reasons, hypnosis would seem to hold considerable potential for the treatment of hypertension.

The scarcity of research in this area may, in part, be due to the contradictory and confusing results of the few empirical studies reported to date. Two studies found that hypnosis was effective in lowering blood pressure (Deabler et al., 1973; Friedman & Taub, 1977). However, one study found hypnosis to be ineffective (Lane & Ruskin, 1950), and the most recent research found that blood pressure actually rose during hypnosis sessions (Case et al., 1980). The treatments used in each of these studies were based on traditional models of hypnosis using standardized inductions, direct and repetitive suggestions, and in some cases requiring the performance of hypnotic tasks. It may be that the mixed results of these studies reflect the limitations of the traditional models used. For example, standardized inductions may not be effective with all individuals. Direct suggestions are considered by some to appeal to the conscious mind, and to increase the liklihood of arousing resistance to therapeutic maneuvers (Bandler & Grinder, 1979; Haley, 1973; Zeig, 1980a, 1980b). Also, the request for performance of hypnotic tasks may arouse resistance and require subjects to experience an active, rather than passive, mental set. Thus, it is not the effectiveness of 'hypnosis' per se that has been studied, but rather the effectiveness of certain standardized inductions using a direct style of communication.

The Treatment Model

The Ericksonian model of hypnosis may overcome a number of the limitations of the traditional models. It is a flexible, permissive approach which is highly individualized to fit the unique needs, life experiences, personality, and goals of each client. Hypnosis is viewed as the communication of ideas to a client "in such a fashion that he will be most receptive to the presented ideas and thereby motivated to explore his own body potentials for the control of his psychological and physiological responses and behavior" (Rossi, 1980, Vol. IV, p. 237). Trance is considered to be an altered state of consciousness which is a common, everyday occurence. The 'common everyday trance' occurs when we are absorbed in a moment of inner reverie, our attention is focused inward as we experience ourselves more deeply, and we may gain a new perspective or solve a problem. The clinical utilization of this state enables clients to be more receptive to their inner experience and unrealized potentials (Rossi & Rossi, 1976).

In contrast to the traditional hypnotic models in which the therapist 'hypnotizes' the client, who may be more or less 'susceptible' to trance, Erickson believed that "one hundred per cent of normal people are hypnotizable..." (Rossi, 1980, Vo. III, p. 29). The specific behaviors and experiences of each client are utilized to produce a trance state, rather than requiring them to

adjust their experiences to fit the therapist's procedures for inducing trance. The Ericksonian model stresses the interactional nature of the hypnotic relationship. The development and utilization of trance is seen as a cooperative effort in which responsibility is mutually assumed between therapist and client (Gilligan, 1982).

Although Erickson used direct suggestion when appropriate, his approach has become widely known for the use of indirect strategies and suggestions. These may have the advantage of bypassing conscious resistance and criticism and thus accessing unconscious processes. In addition, the general and metaphoric nature of indirect suggestions allows individuals to fit and process them according to their own experiences and needs.

In the Ericksonian model, unconscious processes are thought to operate in an intelligent, autonomous and creative fashion. It is assumed that people have stored in their unconscious all the resources and abilities they need to achieve their goals. Learning to enter and utilize trance allows individuals to set aside their learned and limiting conscious processes and shift into a context where they can access and utilize their unconscious resources to achieve their goals (Lankton & Lankton, 1983).

Thus, the ability of indirect strategies and styles of communication to access unconscious processes makes them most applicable to the treatment of psychosomatic problems such as essential hypertension. The potential for using Ericksonian

techniques for the learned self-regulation of blood presssure can be seen in the following passage.

> Erickson's indirect forms of suggestion are all means of arranging such suitable conditions so that individuals can accomplish things that are within their behavioral repertory but usually not available to voluntary control (although automatically and unconsciously available...). The wonder and fascination of hypnosis is that it enables us to control these responses that are usually mediated by unconscious mechanisms outside the normal range of consciousness (Erickson, Rossi & Rossi, 1976, p. 309).

Thus, it can be assumed that people know how to self-regulate and decrease their own blood pressure even though they don't know they know. It is this ability that the indirect mode of communication utilizes and builds on.

The Research Study

This research study was designed to examine the effectiveness of an Ericksonian model of hypnosis in the treatment of essential hypertension with a clinical population. To achieve this goal, an approximately 12 week treatment program was established and offered twice. The first program was conducted between February and May, 1987, and the second program ran from September to December, 1987.

Six volunteer participants with essential hypertension were involved in each program, for a total of 12 study participants.

The research methodology employed was a single-case experimental design, specifically a multiple baseline design across individuals. This is a highly controlled design in which each client acts as his/her own control through pre-treatment monitoring during a lengthy baseline phase. Both physiological and self report data were obtained. Thus, the effectiveness of the treatment was assessed according to short and long term changes in the blood pressure levels of each client, as well as each client's perception and evaluation of the treatment and reported changes in a number of areas. The specific research questions are:

1. Is there evidence to suggest that Ericksonian hypnosis is clinically effective in lowering blood pressure in people diagnosed as hypertensive, based on physiological data?
2. Is there evidence to suggest that Ericksonian hypnosis is effective in lowering blood pressure during the trance sessions, based on physiological data?
3. Were other changes, for example in client lifestyle, health supportive behaviors, drug therapy regime, or in symptoms or difficulties, attributed to the treatment program, according to client self report?
4. Are any reductions in blood pressure levels or other changes maintained over time, based on followup measurements and self report data?

5. Can specific 'active ingredients' of the treatment which promoted improvement be identified?

Contributions of the Study

The results of this study will provide important and original contributions in a number of research and clinical areas. First, the effectiveness of the Ericksonian model of hypnosis has not been extensively researched, particularly in its application to psychosomatic difficulties. This study thus provides initial work in this much-needed area. Second, the use of a single-case experimental design will provide individual data to better understand the effectiveness of hypnosis in the treatment of hypertension, thereby supplementing the between-groups research studies previously conducted. Finally, the use of the more recent Ericksonian model of hypnosis has not been studied in relation to the lowering of blood pressure or in the treatment of essential hypertension. Thus, it is a unique approach which needs to be examined as a potential treatment for this very serious and widespread health problem.

Overview of Chapters

In this chapter, an overview of the problem, treatment model, and research study and questions has been provided. Chapter II

sets the study in a theoretical context, outlining the physiology of hypertension, commonly-used psychological treatments and the effectiveness of hypnosis, and in more detail, the Ericksonian model of hypnosis. The research methodology and procedures are outlined in the third chapter. In Chapter IV the study results are presented. A discussion of those results and suggestions for further research are provided in the final chapter.

CHAPTER II

A REVIEW OF THE RELATED LITERATURE

The review of the pertinent literature is presented in four parts. First, the physiology of blood pressure and hypertension, as currently understood, is outlined. Following this, psychological treatments commonly in use, and their effectiveness in treating hypertension, are summarized. In the third section, hypnosis studies are discussed, including those that examine the effects of hypnosis on blood pressure, and the four major studies that examine the effectiveness of hypnosis as a treatment for hypertension. The chapter concludes with an overview of the treatment model used in this study, the Ericksonian model of hypnosis.

The Physiology of Blood Pressure and Hypertension

Blood pressure is generally defined as the "pressure by which the blood is circulated in blood vessels from the heart throughout the body" (Leenen & Haynes, 1986, p. 1). Its function is to insure that all parts of the body continually receive an adequate supply of blood, regardless of an individual's body motion or posture (Rees, 1980).

The heart, kidneys and arteries make up the blood pressure control system and usually work together to keep blood pressure normal. Each organ can raise the pressure by:

- the heart pumping with greater force;
- the kidneys retaining salt and water (excess fluid); and
- the arteries becoming narrower (Rees, 1980).

In addition to the independent action of each organ in keeping blood pressure under control, the functioning of each is also coordinated by the central nervous system. Thus, the brain and other vital centers of the nervous system send out messages (the release of a chemical called norepinephrine) to one of the organs to increase or decrease the pressure.

For individuals with hypertension, blood pressure remains high, even though the body does not need it. This may be due to a malfunctioning of one or more organs responsible for maintaining normal blood pressure, or some problem in the communication network. Although no one cause has been found for essential hypertension, a number of factors are thought to contribute to high blood pressure. These include a genetic predisposition, acute or prolonged stress, certain personality characteristics (such as 'Type A' characteristics, anxiety, the holding in of anger), high salt and alcohol intake, and excess weight (Leenen & Haynes, 1986).

The level of blood pressure remains the main determinant for the diagnosis of essential hypertension. As a general guideline, if an individual has two out of three blood pressure readings

greater than 140/90 mmHg (millimeters of mercury) over a number of days, they are considered hypertensive and in need of treatment. The top number (140) in the reading is the systolic blood pressure. This represents the pressure in the arteries when the heart is at the peak of its contraction, pushing the blood through the circulation. The bottom number (90) is the diastolic blood pressure, which represents the pressure in the arteries when the heart is filling with blood between beats (Rees, 1980). Diastolic blood pressure is generally recognized as the more clinically significant number as it more closely reflects the level of peripheral vascular resistance, and is more difficult to lower.

Psychological Treatments

In general, psychological treatments of hypertension are based on the assumption that hypertension is mediated primarily through increased sympathetic nervous system activity. Psychological techniques lead to reductions in autonomic, particularly sympathetic, discharge (Stainbrook et al., 1983).

The psychological treatments which are primarily used in the therapy of hypertension are supportive psychotherapy, relaxation/meditation techniques, biofeedback, and eclectic psychological therapies.

Supportive Psychotherapy

Supportive psychotherapy is a nonspecific approach which is based on the assumption that blood pressure can be lowered indirectly by reducing anxiety and generating optimisim and cooperation with pharmacologic treatment. Research studies employing supportive psychotherapy have reported small reductions in blood pressure ranging from 3 to 9 mmHg systolic and 2 to 6 mmHg diastolic (as summarized in Stainbrook et al., 1983).

Relaxation/Meditation Techniques

By far the most widely practiced and researched psychological treatments are the relaxation/meditation techniques, which include a diverse group of ancient and modern practices such as progressive muscle relaxation, Transcendental Meditation, Zen Meditation, Hatha Yoga, autogenic training, and 'the relaxation response'. By definition, these techniques can be considered "self-induced, non-pharmacologic altered states of consciousness" (Frumkin et al., 1978, p. 303).

Jacobson's (1938) progressive muscle relaxation was the first formalized psychological method used to treat hypertension, and it is still a commonly used technique or component of treatment. Its objective is to help patients detect muscle tension and reduce it by systematically tensing and relaxing major muscle groups. This

is thought to lead to lower levels of physiological and emotional arousal, thereby lowering blood pressure (Stainbrook et al., 1983). Studies employing progressive muscle relaxation in the treatment of hypertension show reductions from 6 to 13 mmHg systolic and 2 to 11 mmHg diastolic (as reviewed in Stainbrook et al., 1983). These reductions are equivalent to those achieved with supportive psychotherapy and sometimes superior to biofeedback.

A number of the relaxation/meditation techniques (such as Yoga, TM, Buddhist Meditation, and Benson's non-cultic relaxation procedure) aim at an indirect control of blood pressure via what Benson (1974) has called 'the relaxation response'. This is an integrated physiological response believed to be associated with decreased activity of the sympathetic nervous system. During elicitation of the relaxation response, there are decreases in oxygen consumption, carbon dioxide elimination, respiratory rate, heart rate, blood pressure, and arterial blood lactate (Benson et al., 1981). Thus, these procedures produce reductions in autonomic arousal of which blood pressure changes are only one manifestation.

Benson et al. (1974) note four basic elements that are common to the various relaxation methods, and which are considered necessary to elicit the relaxation response.

1. A mental device such as a constantly repeated stimulus (sound, word, phrase, or a fixed gaze at an object) which is intended to produce a shift from logical, externally-oriented thought.
2. A passive attitude, disregarding distracting thoughts.

3. Decreased muscle tone.

4. A quiet environment.

Trained instructors are believed to increase the efficiency with which the various methods are learned.

Techniques that elicit this response and which have been used in the treatment of hypertension have been found to reduce blood pressure by as much as 27 mmHg systolic and 23 mmHg diastolic, although 7 mmHg systolic and 5mmHg diastolic is the average reduction (Stainbrook et al., 1983). Overall, these outcomes suggest that relaxation/meditation techniques can effect small but significant blood pressure reductions in patients who have essential hypertension (Stainbrook et al., 1983; Seer, 1979). These reductions have been shown to persist for up to six months and to generalize to environments other than those in which the training was conducted (Frankel et al., 1978).

In addition to the laboratory or clinical studies, a number of studies have explored the usefulness of home practice of relaxation techniques as a treatment for hypertension. These studies used audiotapes of relaxation procedures, which have been found to be effective in reducing blood pressure (Taylor et al., 1977; Bali, 1979). In a 1983 study by Taylor et al., however, little change in systolic and diastolic blood pressure was found, and the value of regular home practice was questioned. The results of a 1984 study by Goldstein et al. showed reductions of blood pressure in a ten week treatment involving systematic muscle relaxation, imagery, and

deep breathing. In a recent study by Hoelscher et al. (1986), subjects in a 10 week treatment program used the daily practice of an audiotaped progressive muscle relaxation procedure. Those subjects who practiced at least once a day showed blood pressure reductions of 18.8 mmHg systolic and 6.6 mmHg diastolic.

Biofeedback

Biofeedback therapy is a narrowly focused, specific approach to the treatment of hypertension that requires highly sophisticated technology only developed in recent years. It uses operant conditioning principles to train subjects in the self-regulation of typically involuntary responses. In biofeedback training, blood pressure is recorded and fed back to the subject in the form of a light or sound signal, or by letting subjects directly observe their blood pressure reading. This allows them to become aware of fluctuations in blood pressure and to learn to exercise voluntary control to reduce the level (Seer, 1979).

Empirical studies using biofeedback in the control of hypertension show reductions of up to 19 mmHg systolic and 15 mmHg diastolic (Shapiro et al., 1977).

Eclectic Psychological Therapies

A number of studies have examined a mix of psychological techniques to allow the tailoring of treatment to fit the abilities or preferences of individual patients. Some of the techniques used include progressive muscle relaxation, visual imagery, breathing exercises, and biofeedback. These treatment programs often included homework and record-keeping, as well as teaching patients to use environmental cues as prompts for brief relaxation pauses (Stainbrook et al., 1983). Overall, the results of these mixed treatment programs show consistently greater reductions than the use of any other one method. Reductions range from 12 to 24 mmHg systolic and 9 to 16 mmHg diastolic (as reviewed in Stainbrook et al., 1983).

Discussion

In a number of studies which compare stress management procedures such as relaxation and biofeedback to pharmacotherapy, drug treatment has been found to be superior in the reduction of high blood pressure (Luborsky et al., 1980; Luborsky et al., 1982; Goldstein et al., 1982). Psychological treatments are viewed, however, as a useful adjunct to drug therapy as patients may require lower doses or fewer drugs to maintain blood pressure control (McCaffrey et al., 1985). Psychological treatments are

generally viewed as an alternative to drug treatment only when a patient cannot tolerate drug side effects.

From the patient's perspective, however, there may be serious concerns about drug therapy as a long-term solution to their health problem. It has been estimated that 50% of hypertensive patients drop out of drug treatment within one year, and of those under care, 40% don't take enough medication to bring their blood pressure to within normal limits (Laughlin, 1981). The specific reasons for this dissatisfaction with drug-taking, despite their proven and superior effectiveness in lowering blood pressure, has not been adequately researched or addressed. It may very well be that, from the patient's perspective, psychological treatments are more desirable than drug treatment, regardless of the amount of reduction that can be achieved.

Despite the large number of studies using psychological treatments of hypertension, the active therapeutic ingredients of the techniques have not been established. Some researchers maintain there is a specific effect of relaxation and biofeedback (Patel & North, 1975; Taylor et al., 1977; Bali, 1979; Patel et al., 1981; and Luborsky et al., 1982), while others contradict that conclusion (Blanchard et al., 1979; Frankel et al., 1978; and Brauer et al., 1979). Recent studies have highlighted the importance of considering nonspecific, or placebo, variables. Some of these include: patient expectation (Agras et al., 1982); instructional sets (Redmond et al., 1974); regular practice; and

task awareness. In a review of these issues, Jacob et al. (1977) and Wadden and de la Torre (1980) concluded that relaxation treatments do offer more than placebo in reducing blood pressure.

Hypnosis Studies

Physiological Studies -- Hypnosis and Blood Pressure

In contrast to the elicitation of the relaxation response, which is associated with a consistent physiological pattern, a physiological response specific to the hypnotic state has not been found (Sarbin & Slagle, 1972). Hypnosis may lead to a variety of physiological responses, depending on the type of suggestions given and the type of induction used (Crasilneck & Hall, 1959, 1985; Levitt & Brady, 1963). In a review of the literature between 1948 and 1959 on the physiological changes associated with hypnosis, Crasilneck and Hall (1959) concluded that the hypnotic state itself has not been shown to lower blood pressure. This was later confirmed in a 1960 study by Crasilneck and Hall, in which the authors studied the effects of 'neutral hypnosis' (defined as "under hypnosis but without suggestions concerning the effect being evaluated", p. 137).

The effects of various types of inductions and suggestions on blood pressure have been studied. A comparison of two different types of hypnotic inductions, a relaxation versus a task induction,

was one part of a larger study conducted by Morse et al. (1977). The results indicated that, with task hypnosis, mean blood pressure rose (by 2 mmHg systolic and 1 mmHg diastolic). With relaxation-hypnosis, systolic blood pressure decreased by 2.5 mmHg and diastolic blood pressure by 2 mmHg. The results of this study highlight the importance of distinguishing the type of induction used. In addition, they show the blood pressure lowering effects of suggestions for relaxation and the pressor effect of having individuals undertake tasks while in trance.

In one portion of a 1982 study by Holroyd et al., the authors employed hypnotic suggestions for relaxation and specific suggestions aimed at lowering blood pressure. The results indicated that the normotensive subjects were able to reduce their systolic blood pressure from 108 to 103 mmHg. The authors believed this to be of reasonable magnitude, particularly since the blood pressure lowering occurred in only one 25-minute training session.

Hypnosis Treatments

In a 1967 review of some major works in Soviet hypnotherapy, Hoskovec reported the results of one study in which hypnotherapy had been successfully used for patients suffering with hypertensive disease. Blood pressure was reported to fall when the patients reached the state of hypnotic sleep. Between 30 and 40 sessions were reported to be necessary for treatment of hypertension by hypnotherapy.

In North America, despite the interest in psychological treatments of hypertension, there have only been four empirical studies published which have examined the effects of hypnosis in lowering blood pressure. The first study, conducted in 1950 by Lane and Ruskin, found that, for seven subjects with hypertension, "hypnotic calm, unlike sleep, had no hypotensive effects" (p. 68). The specific inductions used were not reported, only that relaxing suggestions and posthypnotic suggestions were "repeatedly droned into the patient's ears during the deeper half hour trances" (p. 67).

In an often-cited 1973 study by Deabler et al., a treatment of muscular relaxation combined with hypnosis with 15 medicated and unmedicated hypertensive subjects was compared to a control group of six non-medicated hypertensive subjects. The treatment consisted of eight or nine sessions scheduled at half day intervals over a four day period. Both relaxation and hypnosis were found to be effective in lowering blood pressure, although hypnosis was particularly effective. Patients were able to reduce pressures to within normal limits (140/90 mmHg) by the second or third sessions, and these pressure readings were maintained below the hypertensive level for all remaining sessions. However, since hypnosis was not evaluated independently, its effect may have been confounded by the use of the relaxation procedures (Friedman & Taub, 1977).

Friedman and Taub (1977) conducted a study to evaluate a combined hypnosis and biofeedback treatment in lowering diastolic

blood pressure in patients with essential hypertension. A total of 48 medicated and unmedicated subjects were placed in one of four groups: hypnosis only, biofeedback only, hypnosis and biofeedback combined, or measurement only. Only those subjects who scored high on the Stanford Hypnotic Susceptibility Scale, Form A (Weitzenhoffer & Hilgard, 1959) were assigned to the groups using hypnosis or hypnosis/biofeedback procedures. Treatment consisted of seven sessions over a three week period.

The results indicated that hypnosis alone was most effective in reducing blood pressure during the training periods (with a mean reduction in median diastolic pressure of 8.2 mmHg). Also, this effect persisted beyond the laboratory training periods at the one week and monthly followups (Friedman & Taub, 1978).

The most recent study was published in 1980 by Case et al., who examined both the intra-hypnotic and long-term effects of self-hypnosis in treating mild hypertension. The effects of a self-hypnosis treatment with fifteen unmedicated hypnotizable subjects and fifteen normotensive hypnotizable subjects were compared to two groups of non-hypnotizable hypertensive and normotensive controls. Hypnotizability was determined according to H. Spiegel's Hypnotic Induction Profile (1974).

The most striking finding of this study was that, for both hypnotizable hypertensive and normotensive subjects, blood pressure rose immediately at the onset of hypnosis and subsided gradually over the next 10-15 minutes. This did not occur for the 'not

hypnotizable' normal or hypertensive controls. After hypnosis, subjects reported feelings of well-being and relaxation, despite their blood-pressure elevation.

In the four month followup period, the long-term effects of daily self-hypnosis practice were variable: of the 15 hypertensive patients, 5 exhibited steady declines in blood pressure to within normal limits, 7 had no consistent change, and for 3 patients blood pressure actually rose. Despite this, all patients reported that they experienced improvement in their sense of well-being, mood, and behavior patterns. The authors concluded that the uniform finding of subjective improvement with the practice of self-hypnosis was of importance despite questions as to the blood pressure lowering effect per se. Alterations in the behavior patterns of coronary-prone hypertensive individuals to more subjective placidity may be beneficial to their cardiovascular health, whether or not it lowers blood pressure.

Discussion

In the physiological studies of hypnosis and half of the hypnosis treatment studies, hypnosis appeared to have some merit as a treatment method. The Deabler et al. (1973) study in particular indicated that hypnosis may be as effective as the relaxation/ biofeedback procedures. However, it is difficult to fully assess the effectiveness of the hypnotic treatments as the studies

conducted to date have used between-group designs, and have not reported individual data. Therefore, the effects for specific individuals, and insights regarding why for some individuals hypnosis was effective and for others ineffective, cannot be determined.

To some theorists, a hypnotic induction and a relaxation procedure are one and the same thing. For example, Benson et al. (1981) state that "procedures for self-and hetero-hypnotic induction and for the elicitation of the relaxation response appear to be similar" (p. 259). Edmonston (1981) reviewed the literature on this topic and concluded that there is no difference between hypnotic induction methods and relaxation methods. Both hypnotic inductions and relaxation techniques may evoke an altered state of consciousness and have the potential for producing a trance-like state (Zahourek, 1985).

A crucial distinction between hypnosis and relaxation rarely made in the literature is the goals of these two procedures. With relaxation techniques, the goal is either to decrease muscular or mental tension, or attain that physiological 'relaxation response'. In hypnotic procedures, the ultimate goal is rarely to achieve a relaxed state. Erickson did, in fact, state that relaxation is not a necessary component of trance induction (Erickson, 1980). When a relaxation procedure is used, it is intended to lead the individual into, or deepen, a trance state, which is then utilized to achieve the goals of therapy. In the

Ericksonian model of hypnosis, utilization of trance would aim at accessing and mobilizing unconscious resources and processes. Thus, although a relaxation procedure may be used as a hypnotic induction, hypnotic treatment goes beyond relaxation to use the trance state for therapeutic goals.

Unlike the other studies of psychological treatments of hypertension, the hypnosis studies have not addressed the active therapeutic components of treatment. Physiological and mental relaxation may well be one of those ingredients, particularly as all of the inductions used incorporate relaxation techniques and suggestions to varying degrees. Autonomic self-regulation has not been directly considered, nor has the accessing of unconscious processes or nonspecific factors such as subject expectation or therapist time and attention.

The Ericksonian Model of Hypnosis

A number of Erickson's students have attempted to systematize his techniques and approaches into coherent frameworks (O'Hanlon, 1985). These frameworks include: Haley's (1967; 1973); Bandler and Grinder's (1975); Rossi's (Erickson, Rossi & Rossi, 1976; Erickson & Rossi, 1979; Erickson & Rossi, 1981); Gordon and Myers-Anderson's (1981); and Lankton and Lankton's (1983).

Gilligan (1987) has outlined a number of general principles upon which Ericksonian communication is based:

1. Accept and utilize the client's reality.

The process of accepting and utilizing is one of communicating that what the client is doing is fine and it will allow them to do something else, such as experience trance. Utilization refers to accepting the client's responses, behaviors, and ideas as valid and using them to further therapeutic goals.

2. Pace and lead the client's behavior.

Pacing communications feed back the client's experience, with the intent of establishing therapist-client rapport. The therapist can then lead by introducing behaviors that are consistent with, but different from, the client's present state and slightly closer to the desired state (such as trance).

3. Resistant behavior is a statement that the therapist needs to pace some further aspect(s) of the client's experience.

In this model, the therapist takes whatever the client gives him or her and uses it; thus, everything the client is doing is exactly what the therapist would like him or her to be doing. Signs of 'resistance' are a message that the therapist needs to synchronize with the client again.

4. Pace and depotentiate conscious processes. Absorb and amplify unconscious processes.

   Difficulties or problems are thought to result from engulfment by habituated conscious processes. The therapist thus seeks to depotentiate the client's recurrent conscious processes to allow previously inaccessible resources to be actualized.

5. Use indirect communication to the extent that a client's conscious processes might object or otherwise interfere with the development of desired changes.

Indirect Forms of Suggestion

Erickson developed a vast array of indirect strategies and forms of suggestion for inducing and utilizing trance. Indirect suggestions, by definition, have an indirect, covert relationship to the problem and desired response (Yapko, 1983). For example, if the therapist wants the client to achieve eye closure, they can suggest this response directly: "Close your eyes", or "You can close your eyes". As an alternative, the therapist can suggest this response in an indirect, subtle way: "When you go home at the end of a long, tiring day, isn't it nice to let your eyes close".

In an overview of the history of indirect suggestion, Erickson & Rossi (1980) outline a number of their basic features:

1. Indirect suggestion permits the subject's individuality, previous life experience, and unique potentials to become manifest;
2. the classical psychodynamics of learning with processes like association, contiguity, similarity, and contrast, are all involved on a more or less unconscious level; so that
3. indirect suggestion tends to bypass conscious criticism and because of this can be more effective than direct suggestion (p. 455).

The microdynamics of trance induction and indirect suggestion are viewed as a 5-stage process: (1) the fixation of attention; (2) depotentiating conscious sets and habitual frameworks; (3) unconscious search; (4) unconscious processes; and (5) hypnotic response (Erickson & Rossi, 1980). Thus, indirect suggestions initiate an unconscious search and facilitate unconscious processes, so that clients are often surprised by their own response when they recognize it.

Some of the commonly used types of indirect suggestion will be outlined, along with an example of each.

1. Generalization

   "Some people can experience trance quickly and easily."

2. Open-ended suggestions

   "Trance is a way of learning about yourself at a different level of being."

3. Implication

"Which sensation do you imagine you will experience first?"

4. Truisms

These are statements about cultural or human conditions which are usually undeniable.

"Each person goes into trance in a unique manner."

5. Suggestions which cover all possible alternatives

"You can go into trance slowly, gradually, or suddenly, with your eyes closed or open, or not at all."

6. Apposition of opposites

A juxtaposition of two behaviors which are changing in opposite directions.

"The less you notice the tension, the more you have a capacity to concentrate on relaxation."

7. Questions or statements that focus or reinforce awareness

"I wonder if you experience yourself ready to begin."

8. Therapeutic binds and double binds

The presentation of two or more alternatives, any one of which will lead to a desired therapeutic response.

"Would you like to experience a light, medium, or deep trance?"

9. Conscious-unconscious double bind

This type of double bind is based on the fact that we cannot consciously control our unconscious. These thus tend to block the client's usual, voluntary modes of behavior so that responses must be mediated on a more autonomous or unconscious level.

"You don't even have to listen to me because your unconscious is here and can hear what it needs to, to respond in just the right way."

10. Interspersals or embedded suggestions

These are therapeutic directives that are interspersed within other more general communications to the client. The suggestions are usually delivered using a different nonverbal channel, such as a vocal shift or postural cue, to mark out the message.

"There are a number of ways to <u>begin to drop into trance</u>, Jim."

11. Metaphors and storytelling

Erickson's work may be best known for his use of metaphor and stories as an indirect way of pacing and leading a client's problem situation. These can be used to motivate, generate new behaviors and perceptions, overcome limitations, and as a teaching tool (Rosen, 1982).

These are but a few of the many forms of indirect suggestion developed and popularized by Erickson. They can also be used in any form of education and therapy without the formal induction of trance, absorbing the individual inward in a 'common everyday trance' (Erickson & Rossi, 1980).

Summary

Despite enormous research efforts, no one cause for essential hypertension has been found. The disease may be due to a malfunctioning in the organs or communication system responsible for maintaining blood pressure within a normal range. Psychological treatments have been found to lower the blood pressure of hypertensive individuals, although not as much as pharmacologic treatments. Whether hypnosis is an effective treatment method is difficult to determine from the contradictory findings reported to date. It must be remembered, however, that it is not the effectiveness of 'hypnosis' per se that has been reported, but rather the effectiveness of hypnosis using standardized inductions and direct suggestions. Hypnosis utilizing Ericksonian techniques, the model used in this study, is a highly individualized approach which uses mostly indirect strategies and suggestions.

CHAPTER III

METHOD

In both treatment programs, the research method and procedures and the actual focus of the treatment sessions were the same. The phases and sequencing of the treatment programs were designed around the requirements of the single-case research method used, the multiple baseline design across individuals. The effectiveness of the treatment was assessed according to both short and long-term changes in blood pressure, as well as from each client's evaluation of the treatment and reported changes in a number of areas.

Research Design

A single-case experimental design was considered the method of choice for this study for two reasons. First, the treatment used, the Ericksonian model of hypnosis, is based on the principle of tailoring treatment to the unique experiences, beliefs, and needs of each client. Thus, a research design was needed that was flexible enough to examine a highly individualized treatment, and individual change, but within a controlled, experimental framework. The second reason was that the paucity of research on hypnosis and hypertension, the contradictory findings of those studies, and the lack of data on the effects of treatment for

individuals, all pointed to the need for a design that would examine the effectiveness of a hypnosis treatment for individuals. The single-case design allows the monitoring of both process and outcome variables in a format similar to the actual therapist-client relationship in a clinical setting.

Specifically, a multiple baseline design across individuals was used. This design has the ethical and clinical advantage of not requiring the withdrawal of the treatment at any time. It is a highly controlled design in which the intervention effects are evaluated by sequentially introducing the treatment to different individuals at different points in time. If a change in the baseline rate consistently appears after the introduction of the intervention, then it can be assumed that it is the treatment, rather than extraneous events, that caused the observed change (Kazdin, 1982).

Study Participants

Twelve people were involved in the study, six in Program 1 and six in Program 2. This number is well above the three or four participants recommended in the single-case literature as necessary to establish confidence in the controlling effects of the treatment (Barlow & Hersen, 1973; Hersen & Barlow, 1976). Wolf and Risley (1971) state that "while a study involving two baselines can be

very suggestive, a set of replications across three or four baselines may be almost completely convincing " (p. 316). Thus, a series of 12 baselines in total was considered to be a strong demonstration of the effects of the treatment.

All study participants were volunteers who responded to newspaper announcements of a hypertension research program (Appendix A). Respondents were initially screened over the telephone (Appendix B) using the following selection criteria.

1. Between 21 and 65 years of age.
2. Had received a medical diagnosis of essential hypertension (defined as blood pressure above 140/90 without known organic etiology) exceeding one year.
3. If on medication, a stable level of antihypertensive medications during the previous three months.
4. Not taking any psychotropic, hormonal or cardiovascular medications or any other major drugs, except antihypertensives.
5. No secondary organ system damage (renal or vascular).
6. No other serious medical disorder such as diabetes, heart disease, or renal disorders.
7. No evidence of psychiatric disorder or presently in psychotherapy.
8. No serious weight or alcohol problems.
9. Not undergoing any major life changes (such as a move, separation/divorce, or marriage).

These selection criteria were chosen to insure that all study participants had been medically diagnosed as having essential hypertension and no other major health problems. Also, they were aimed at controlling for as many confounding factors as possible. In the hypertension literature, such factors as obesity, cigarette smoking, heavy alcohol use, and hormonal drugs have been reported to increase blood pressure. Thus, by eliminating these influences the effects of the treatment itself could be more easily assessed. For both treatment programs, the six volunteers who best fit the selection criteria were chosen to participate.

The twelve study participants ranged in age from 34 to 63 years, and included seven males and five females. The characteristics of these people are outlined in Table 1. The majority (nine of the clients) were on a drug therapy program; four were taking diuretics, two were on beta-blockers, two participants were taking both a diuretic and beta-blocker, and one person was on a converting enzyme inhibitor. Three participants were unmedicated by their own choice, despite the fact that their blood pressure was consistently higher than 140/90. In general, participants in Program 2 were more heavily medicated than were those in Program 1.

In both treatment programs, the participants comprised a very select group of people with essential hypertension. As a result of the selection process, only those who were of normal weight, were non-smokers, and with no other major health problems were chosen. The participants were thus a healthy group of people, most of whom

Table 1

Characteristics of Study Participants

	Sex	Age (yrs.)	Occupation	Years of Diagnosed Hypertension	Medication	Dosage (mg/day)
Program 1						
Client 1	Male	53	Professor	5	Beta-blocker (Corgard)	40
Client 2	Male	40	Education Consultant	1	Diuretic (Lozide)	25
Client 3	Female	34	Bookkeeper	1	Diuretic (Dyazide and Cardizem)	25
Client 4	Female	60	Homemaker	20	Diuretic (Dyazide)	150
Client 5	Male	63	Salesman	3	None	--
Client 6	Female	57	Homemaker	3	None	--
Program 2						
Client 7	Female	39	Graduate Student	12	Converting enzyme inhibitor (Capoten)	25
Client 8	Male	52	Director, Prov. Govt.	12	Diuretic (Hygroton)	25
Client 9	Female	42	Homemaker	3	Beta-blocker (Tenormin)	50
Client 10	Male	44	Computer Programmer	9	Beta-blocker (Betabloc) and Diuretic (Dyazide)	100 25
Client 11	Male	41	Assistant Manager, major food chain	8	Beta-blocker (Tenormin) and Diuretic (Dyazide)	100 50
Client 12	Male	61	Professor	12	None	--

had previously made some lifestyle and diet changes to try to control their hypertension. Also, only highly motivated people would choose to participate in a treatment program requiring a major time commitment. Their motivation was further evident by the fact that there was no client dropout or cancelling of appointments during the twelve week programs. This high degree of motivation arose from their interest in learning a self-directed technique which may help them reduce or eliminate their medication, or, for those who were unmedicated, bring their blood pressure under control without the use of drugs.

Research Variables

Two types of data were collected in this study -- physiological data, from the monitoring of blood pressure, and client self report data.

Physiological Data

The dependent variables were the systolic and diastolic blood pressure readings. This data was obtained both on a weekly basis throughout the treatment program to monitor 'between session' change, and before and after each of the trance training sessions, to determine 'in session' change.

All blood pressure measurements were taken by the researcher with a standard mercury sphygmomanometer. This is the most accurate and reliable gauge, and is thus highly recommended (Rees, 1980). To assure the reliability of the readings, all measurements were taken according to the following guidelines.

1. Measurements were taken from each client's right arm.
2. Clients were asked to remain silent during the blood pressure measurement.
3. The diastolic pressure recorded was the final disappearance of sound (phase V Korotkoff).
4. The reading began 10 minutes after the client was seated. Each assessment consisted of three determinations of systolic and diastolic blood pressure at approximately 4-minute intervals.
5. As the first reading is often artificially high, the mean of the last two readings served as the data point for that sitting.

The accuracy of the researcher's readings were assessed twice during the course of the study; once in the pilot and once in the main study period. At each time, a series of readings were taken on 10 volunteers by both the researcher and an experienced Registered Nurse. The reliability coefficient (Pearson r) calculated for systolic pressure was .97 and .94 for diastolic pressure. These were considered to reflect the researchers' ability to take accurate blood pressure measurements.

Self Report Data

As most of the participants' blood pressure was already controlled through medication (ie., in the low to normal range), dramatic reductions in blood pressure as a result of the treatment were not expected. It has been found in previous studies that when pre-treatment blood pressure levels are low, it is more difficult to demonstrate a treatment effect as blood pressure has a 'physiologic floor', which is the normal and necessary level of blood pressure (McCaffrey & Blanchard, 1985). Thus, it was considered to be important to also assess the effectiveness of the treatment based on the client's perceptions and self-reported changes in a number of key areas.

1. The type and frequency of symptoms attributed to their high blood pressure.
2. The type and frequency of difficulties such as headaches, insomnia, feelings of anxiety, and the inability to relax/unwind.
3. The type and dosage of hypertension medication.
4. Their involvement in health supportive behaviors such as diet, recreation, and physical exercise.

In addition, any feedback or changes reported by the participants during the treatment program were recorded.

Treatment Procedure

Following initial telephone screening, all selected participants were seen individually, by the therapist/researcher, for an interview. The purpose of this was to review with each an information sheet which gave an overview of the study, a description of the procedures, and a schedule of required sessions (Appendix C). Participants were asked to complete a research permission form (Appendix D), and were given a background information form (Appendix E) to complete at home. They were also requested to inform their physician of their participation in the treatment program, and sign a physician approval form (Appendix F).

From the initial contact with each client onward, the therapist attempted to utilize the 'placebo response' to further the goals of treatment. Traditionally, the 'placebo response' is viewed as a nuisance variable which must be controlled for so the effects of an external treatment, such as drug therapy, can be determined. In this study, the 'placebo response' was viewed as a reflection of our capacity for self-healing by accessing and activating expectations and beliefs in the treatment method. Thus, clients were informed of the positive results of previous studies using methods such as relaxation and biofeedback, participants in Program 2 were shown the positive results of Program 1, and the therapist expressed a positive attitude towards each client's ability to self-regulate his/her blood pressure. Rather than a

variable to be eliminated, this ability for self-healing was used to best advantage.

Baseline Phase

The first phase involved the monitoring of blood pressure to establish a stable, pre-treatment range for each client. Each participant was his/her own control through a comparison of the post-treatment level to the pre-treatment level in the baseline phase. The length of this phase varied from three to six weeks. Measurements were taken twice a week at approximately the same time of day. Thus, the three week minimum baseline was made up of six data points collected on different days, which was considered to be a more than adequate sampling of each individual's usual range of blood pressure.

One of the advantages of a several week baseline phase in a clinical study is that many of the non-specific therapeutic elements are active, such as the focus on the client's health problem, the time and attention of the therapist, and the therapist/client relationship. Therefore, any influences of these elements would likely be reflected in the baseline phase readings, prior to the initiation of treatment. Any changes after the treatment has begun can more confidently be attributed largely to the effects of the treatment.

Trance Training Phase

The second phase consisted of four individual treatment sessions with the therapist/researcher, once a week, with the goal of assisting each client to experience a trance state. General types of inductions were used, including passive progressive muscle relaxation and going on a journey to a relaxing place. Usually the first part of a session would be focused on developing an experience of physical and mental relaxation, and the latter part would utilize the trance state by presenting suggestions aimed at physiological and psychological self-regulation and balance. Throughout the sessions, indirect suggestions were given in the following areas:

1. trance is a natural experience;
2. everyone enters and experiences trance in a unique way;
3. everyone has had the experience of physical and mental comfort and relaxation;
4. the unconscious is intelligent and can operate autonomously; and
5. the unconscious bodymind can self-regulate to keep the system in a natural state of balance and health.

A sample of these suggestions can be found in Appendix G. These suggestions were developed and presented according to the unique experiences, beliefs, and needs of each client. Metaphors and stories were also used as a vehicle for delivering suggestions, and

as much as possible these were based on each client's interests and previous experiences. For example, one client felt most relaxed while skiing, and a skiing metaphor was developed and presented, within which indirect suggestions were embedded.

During this trance training phase, blood pressure was monitored twice a week; once before and once after each trance session, and a second time a few days later.

Home Practice Phase

In the third phase, each client listened to a 30 minute hypnosis audiotape on a daily basis. The tapes were prepared by the therapist/researcher, and were based on the general goal of accessing the innate ability to self-regulate. In Program 1, one audiotape was made on this theme, and a copy was given to each client. In Program 2, an individualized tape was made for each client so that the general theme was delivered in the suggestions and metaphors that seemed to be most effective.

During this four-week period, blood pressure measurements were taken twice a week at approximately the same time of day. Clients were asked to record on a home practice form (Appendix H) the number of times each week they listened to the hypnosis tape. The form was then submitted to the therapist. At the end of phase three, each client was asked to complete a treatment evaluation form (Appendix I).

Followup

A series of followup sessions were conducted with each client once a month for a three month period. At each session, blood pressure was measured and information was requested concerning ongoing listening to the audiotape and any changes that could be attributed to their participation in the treatment program.

Sequencing of Treatment

As discussed previously, the multiple baseline design across subjects requires that treatment be introduced sequentially after longer and longer baseline phases. In each treatment program, the two clients with the most stable blood pressure in phase 1 were the first to begin the trance training sessions. After a stable treatment effect could be ascertained for these clients, the two clients with the next most stable blood pressures moved to the treatment phase. Likewise, when these two showed a treatment effect, the remaining two clients began their treatment.

After each client could experience a light to medium trance quickly and easily, as judged by therapist and client, he/she moved to the home practice phase. In practice, this usually occurred after four trance sessions. The last phase was a standard length of four weeks.

Analysis of Data

Following the completion of the treatment programs, the study results were analyzed in terms of the general patterns and trends for all participants, and the individual changes and experiences reported by each client.

Physiological Data

Between Session Change

To determine between session change for each client, his/her systolic and diastolic blood pressure readings were averaged on a weekly basis. Thus, the data point for one week was the average of four blood pressure readings from two separate days. These weekly readings during the baseline and treatment phases were then plotted on line graphs. Each of the line graphs was visually inspected according to the following criteria for the rate of change.

1. The trend, or slope, in the data, and any systematic increases or decreases over time.
2. The latency of change, assessed from the period between the onset or termination of one phase and changes in blood pressure.

In addition, the blood pressure data were displayed in table form and visually inspected according to the criteria for the magnitude of change.

1. The mean for each phase was calculated as the average of the last two weeks of systolic and diastolic blood pressure readings. This period was considered to be most representative of the actual blood pressure level of each client in each phase. These data were then examined for shifts (increases or decreases) across each of the three study phases.

2. Clinical significance, or the magnitude of the treatment effects. In the research literature on psychological treatments with medicated participants, the only guidelines reported for clinical significance were blood pressure reductions of 10 mmHg or greater systolic, or 6 mmHg or greater diastolic (Luborsky et al., 1982; Charlesworth, et al., 1984). These guidelines were thus adopted in this study. From the table of phase means, clinical significance was determined according to the difference between the means of the baseline and home practice phases.

Followup data, the average of the blood pressure readings obtained in each of the three followup sessions, were displayed on the line graphs and in table form. These data were visually examined to assess major changes in trend, compared to each client's blood pressure average in the last phase of the treatment program.

In Session Change

In session change was calculated as the difference between the systolic and diastolic blood pressure of each client before and after each of the trance training sessions. The 'before' reading was the average of the last two in the series of three measurements; the 'after' reading was the first reading in the series of the three recorded. The pre-post differences for each client's sessions were tabulated and visually examined for common patterns and trends.

Self Report Data

A brief overview of the background, experiences, and feedback obtained during the treatment programs is provided in a case-study format for each client. Also, information obtained from the background information form (pre-treatment) and treatment evaluation form (post-treatment) was compared to assess reported areas of change. Finally, common themes, perceptions, and outcomes for all participants were determined.

Summary

The use of a single-case design allowed the effectiveness of the individualized treatment to be assessed according to the physiological and self report changes for each of the 12 study

participants. The research findings were visually inspected, and are presented in the following chapter in answer to the research questions.

CHAPTER IV

RESULTS

In this chapter, the research findings are presented at both the general and specific levels. First, the overall patterns and trends in the physiological data are outlined, followed by the more detailed results for each individual and any self-reported changes. The findings are reviewed in terms of the four research questions; the fifth question is more appropriately discussed in the following chapter.

Physiological Change

Between Session Change

Research Question 1: Is there evidence to suggest that Ericksonian hypnosis is clinically effective in lowering blood pressure in people diagnosed as hypertensive, based on physiological data?

This question will be answered by examining the rate and magnitude of change in systolic and diastolic blood pressure during the treatment program.

Rate of Change

Trend

Changes in trend can be easily observed from the line graphs of systolic and diastolic blood pressure, Figures 1 to 4. For all

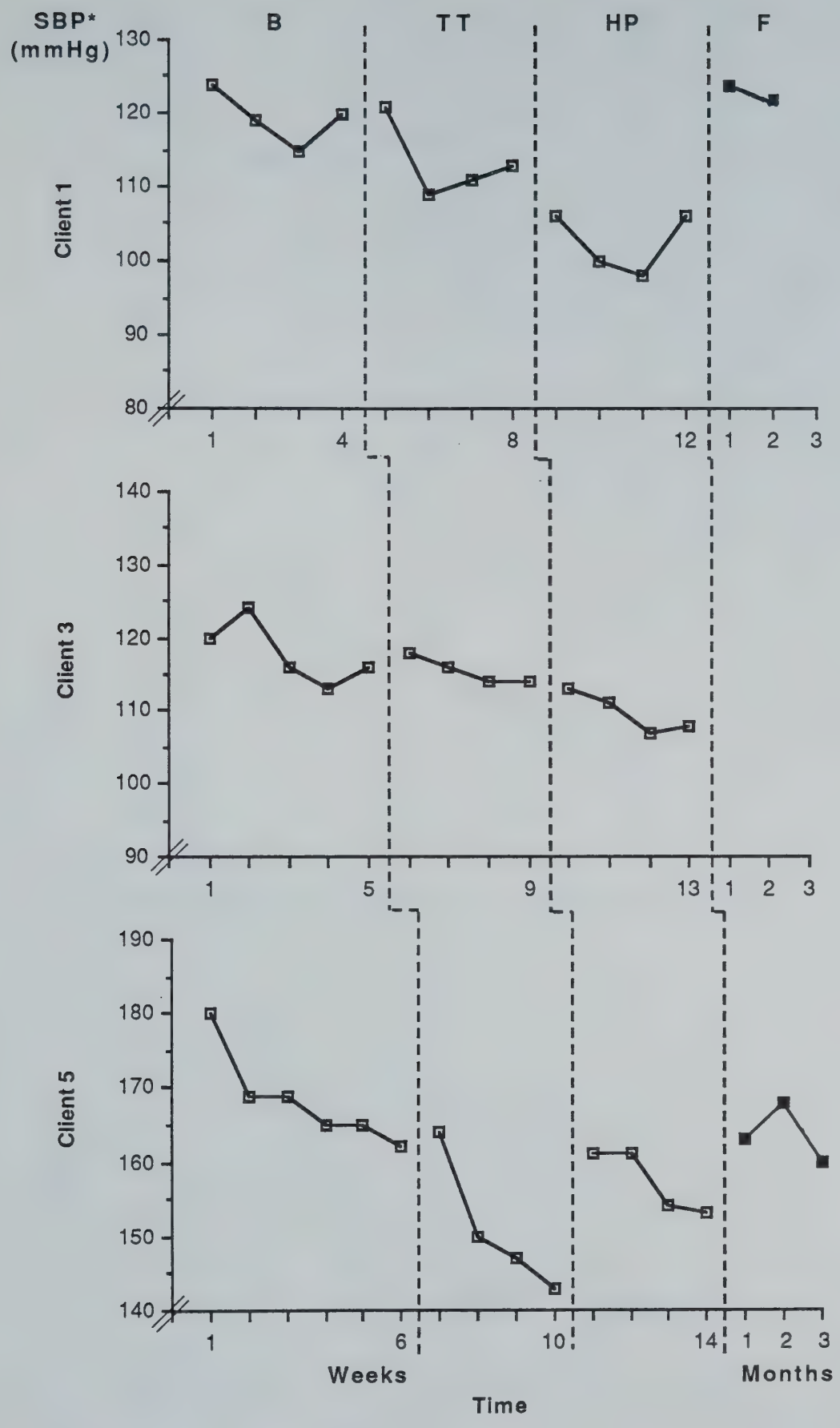
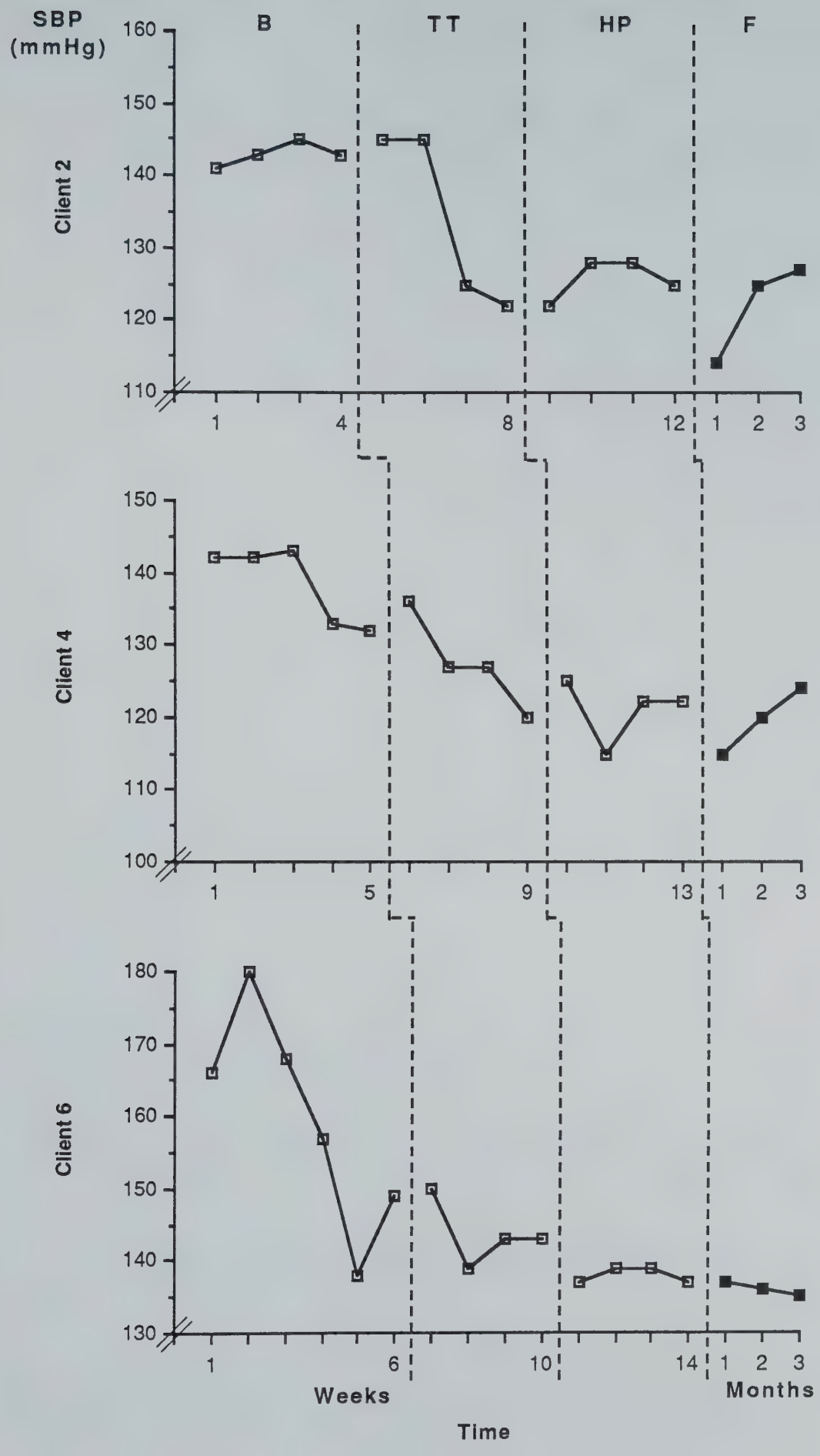


Figure 1: Changes in systolic blood pressure (SBP): Program 1. B=baseline, TT=trance training, HP=home practice, F=followup.

*NOTE: Due to the wide overall range of systolic blood pressure values, the range used on each graph has been tailored to the client.


SBP
(mmHg)
B
TT
HP
F
Client 2
160
150
140
130
120
110
1
4
8
12
1
2
3
Client 4
150
140
130
120
110
100
1
5
9
13
1
2
3
Client 6
180
170
160
150
140
130
1
6
10
14
1
2
3
Weeks
Months
Time

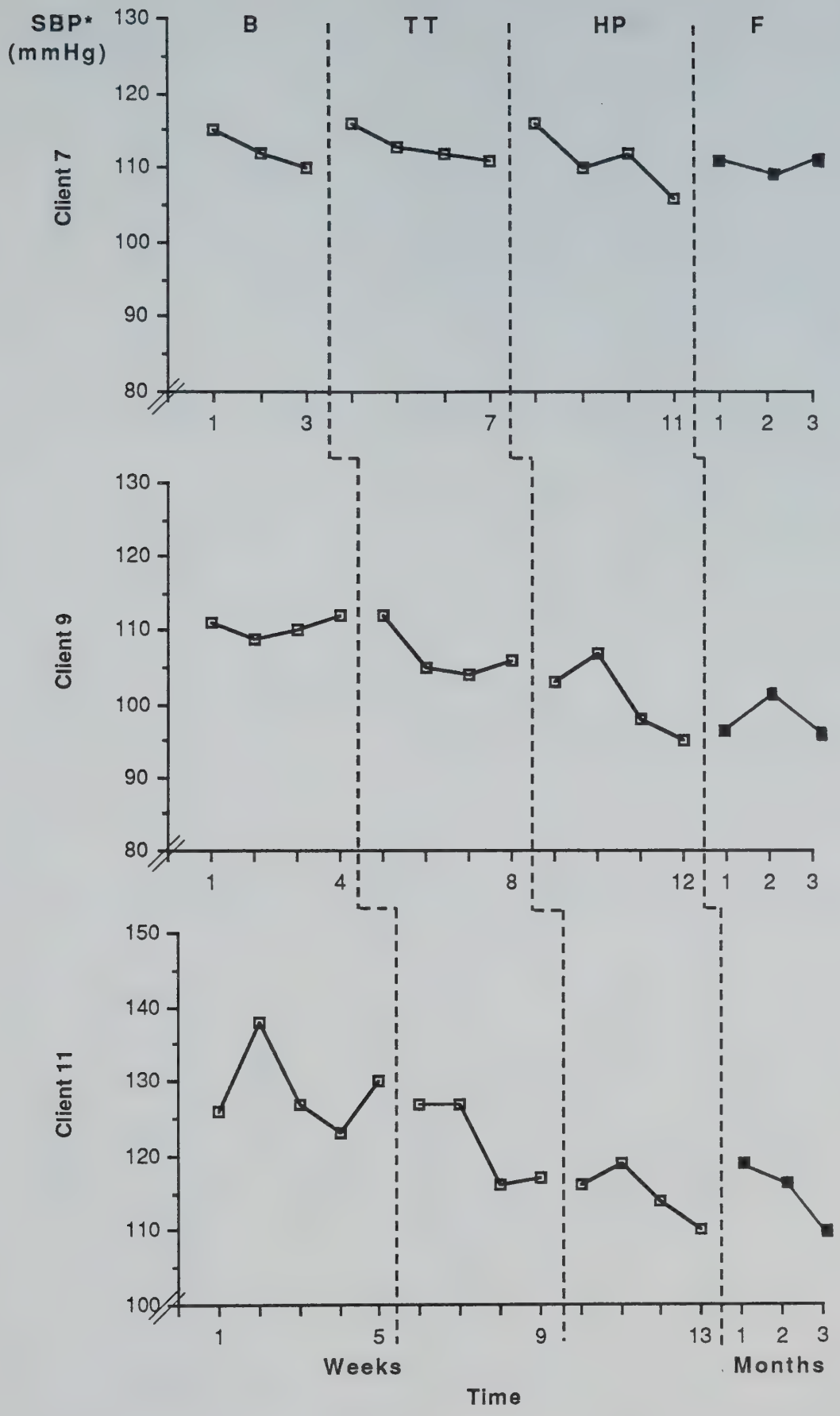
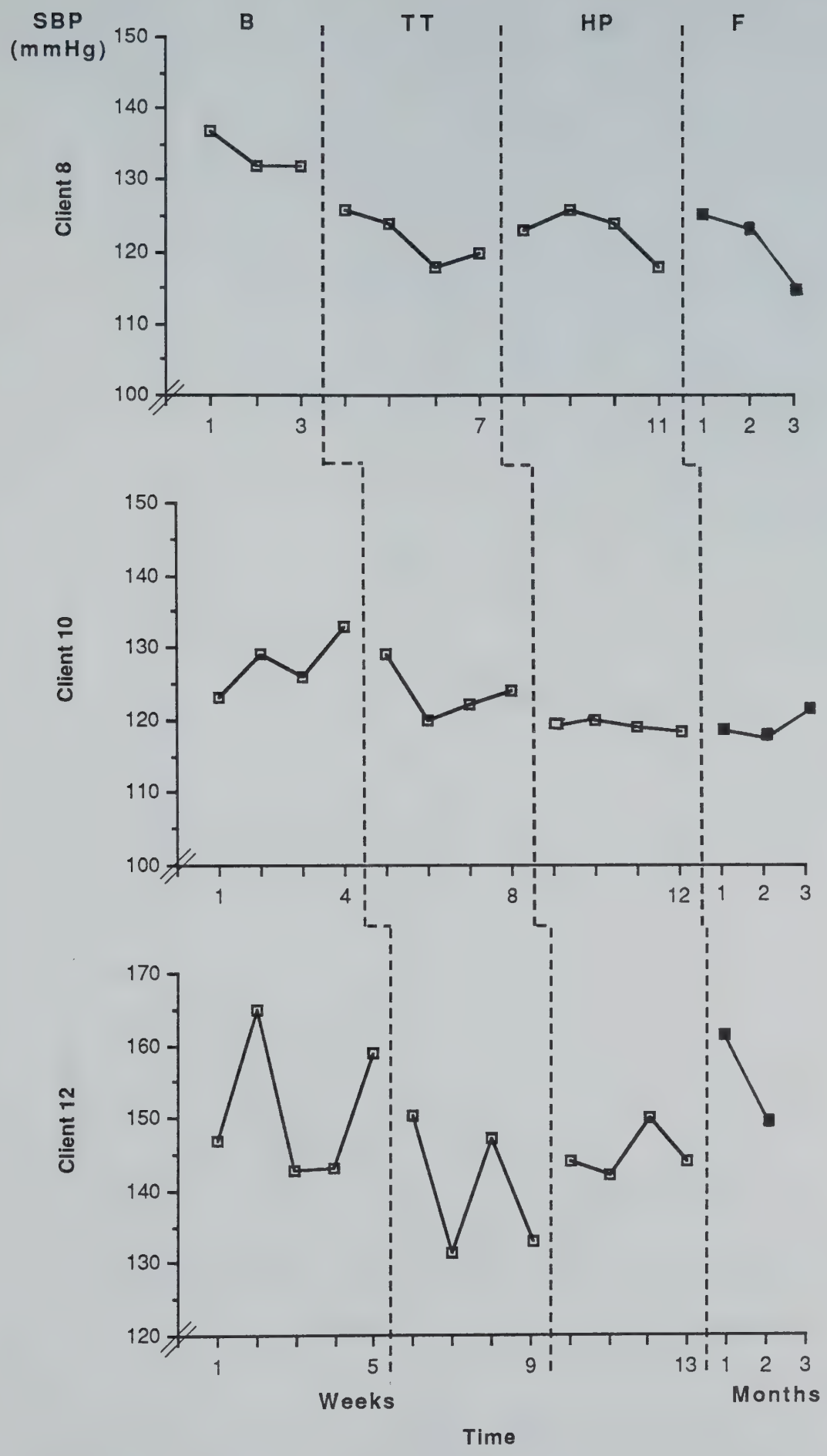


Figure 2: Changes in systolic blood pressure (SBP): Program 2. B=baseline, TT=trance training, HP=home practice, F=followup.

*NOTE: Due to the wide overall range of systolic blood pressure values, the range used on each graph has been tailored to the client.


SBP
(mmHg)
B
TT
HP
F
Client 8
150
140
130
120
110
100
1
3
7
11
1
2
3
Client 10
150
140
130
120
110
100
1
4
8
12
1
2
3
Client 12
170
160
150
140
130
120
1
5
9
13
1
2
3
Weeks
Months
Time

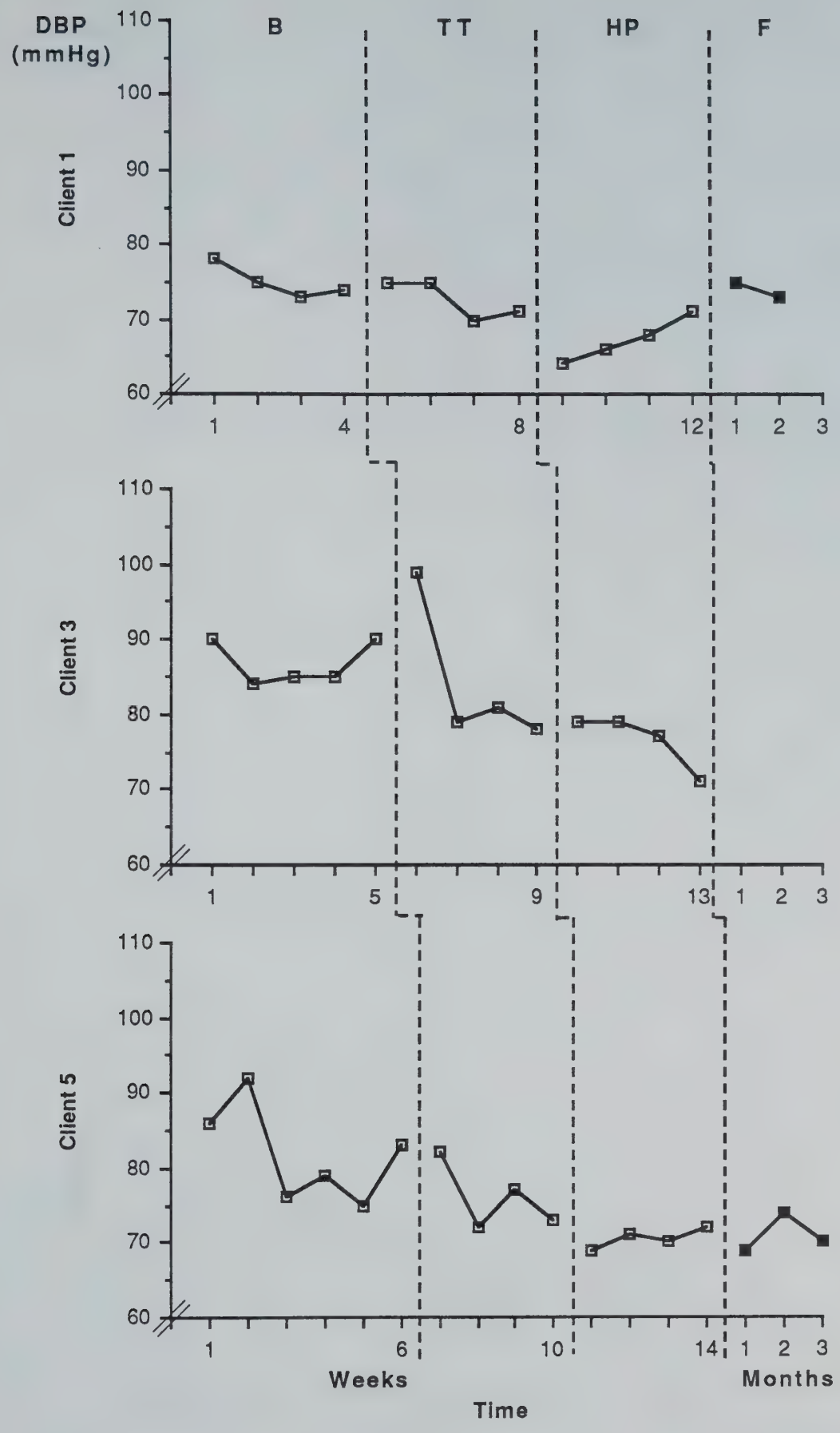
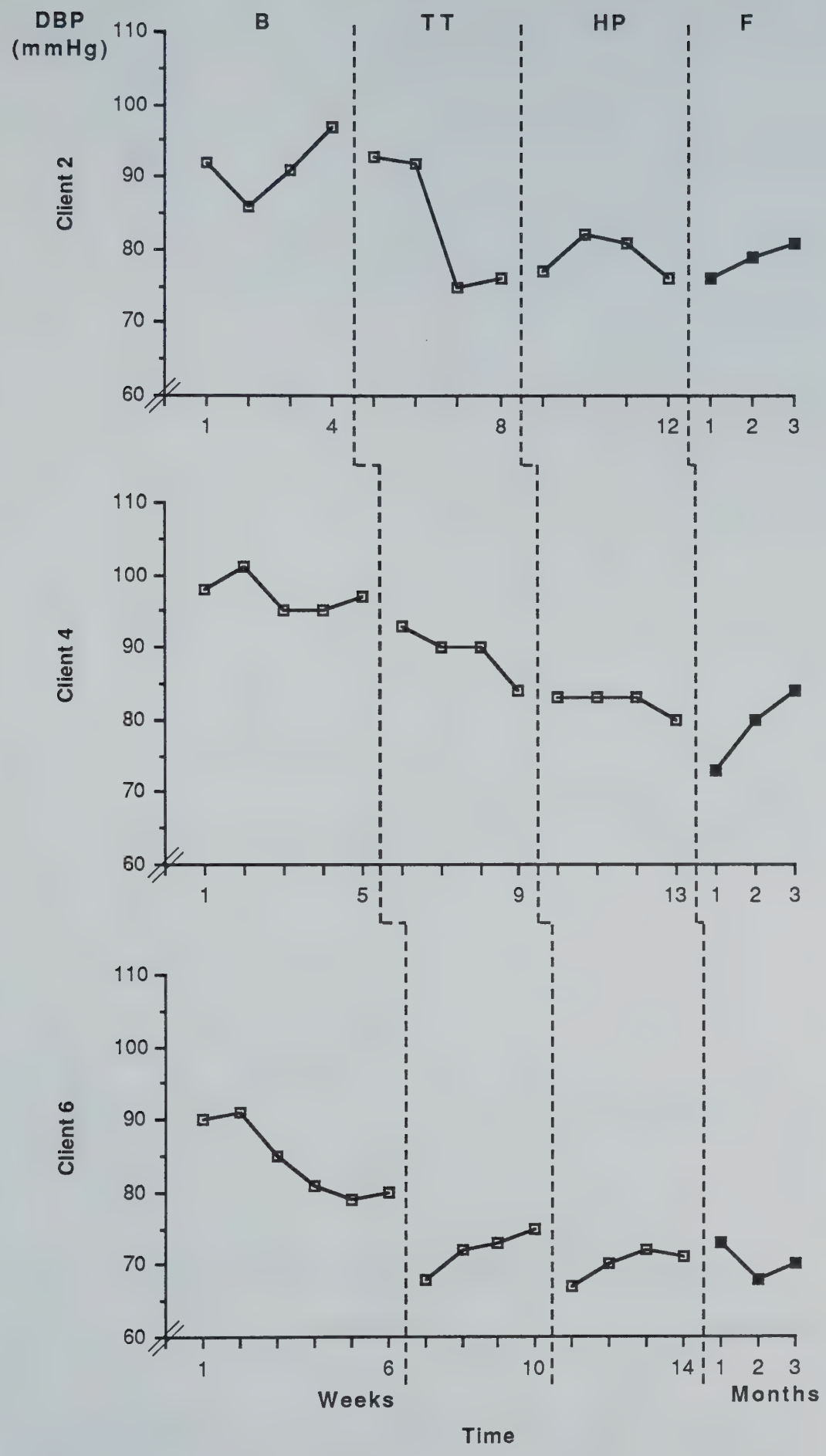


Figure 3: Changes in diastolic blood pressure (DBP): Program 1. B=baseline, TT=trance training, HP=home practice, F=followup.


DBP
(mmHg)
B
TT
HP
F
Client 2
Client 4
Client 6
110
100
90
80
70
60
1
4
8
12
1
2
3
5
9
13
6
10
14
Weeks
Months
Time

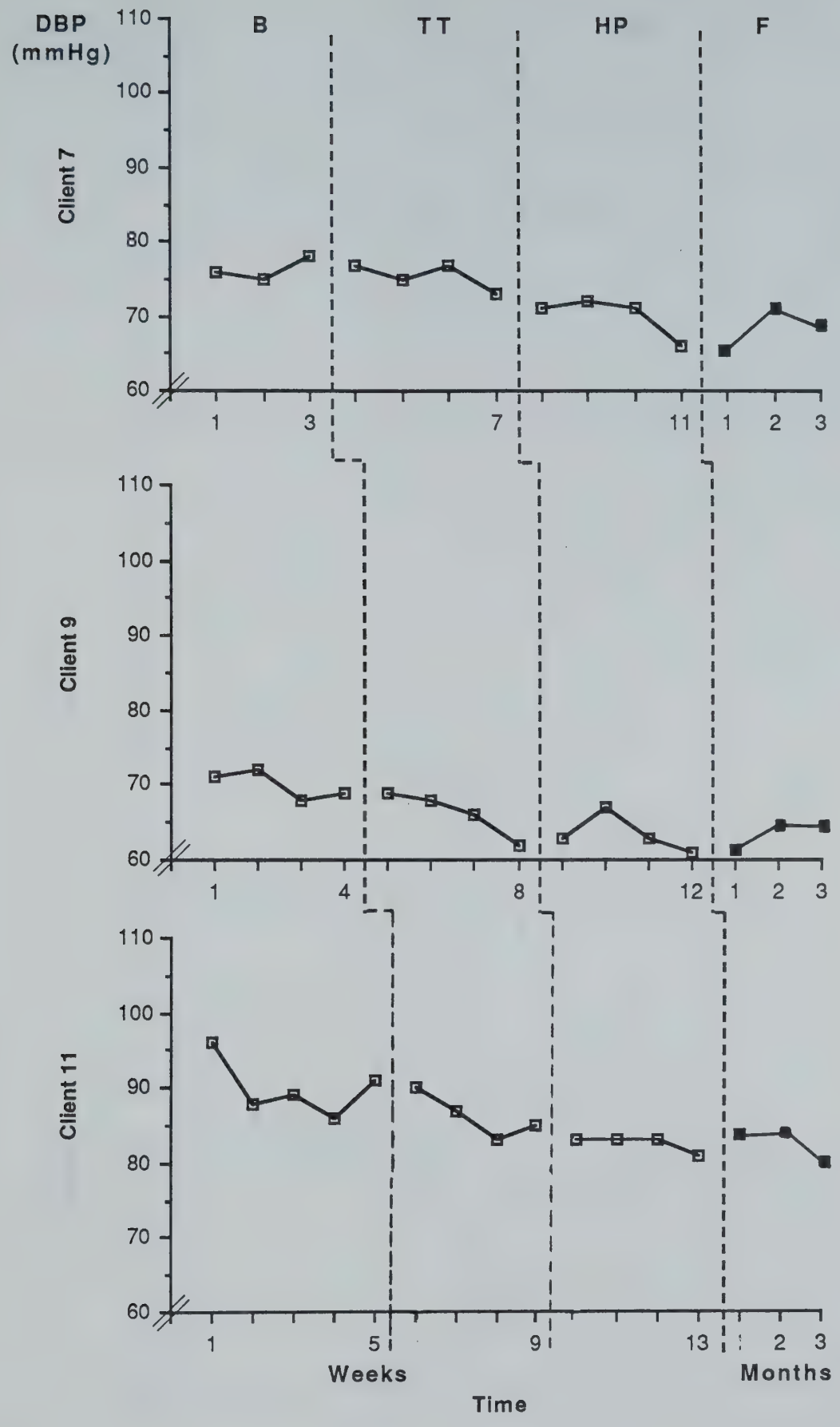
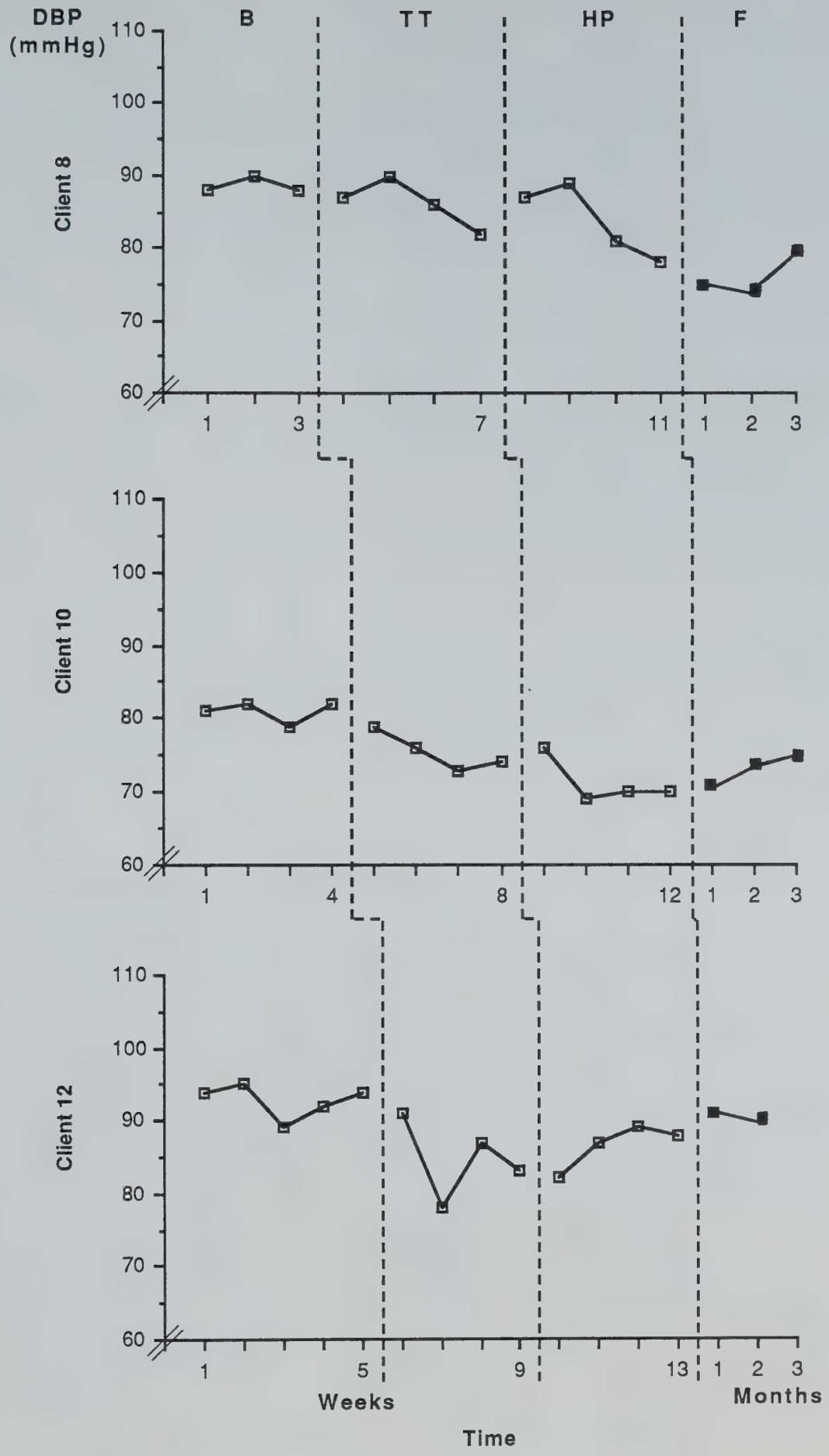


Figure 4: Changes in diastolic blood pressure (DBP): Program 2. B=baseline, TT=trance training, HP=home practice, F=followup.


DBP
(mmHg)
B
TT
HP
F
Client 8
Client 10
Client 12
110
100
90
80
70
60
1
3
7
11
1
2
3
4
8
12
5
9
13
Weeks
Months
Time

participants, this change is reflected by a decreasing line or slope. That is, blood pressure was highest during the baseline phase, and then decreased in either or both of the treatment phases.

More specifically, three patterns were identified in the decreasing trend. For most participants, systolic and diastolic blood pressures were highest in the baseline phase. For some people, blood pressure generally decreased in phase 2 and increased somewhat in phase 3, although the overall decreasing trend was maintained. Finally, for a few clients (two in terms of systolic pressure, one in diastolic), the baseline and phase 2 slope was generally level, with a decrease in blood pressure shown in phase 3 only.

Latency of Change

In terms of the latency of change, for 8 of the 12 participants reductions in both systolic and diastolic blood pressure were evident by the second or third week after the initiation of treatment in the trance training phase. Readings in this phase were usually much lower than at any assessment point during phase 1. For a few participants, this reduction was quite dramatic. For example, client 2 showed major reductions by the third week of the trance sessions of 20 mmHg systolic and 17 mmHg diastolic.

More immediate change, in the first week of phase 2, was evident in the systolic pressure of one client, and in the diastolic pressure of three clients. For the rest, no reductions were evident until the last week of phase 2 or the latter part of phase 3.

Although the treatments were initiated after varying lengths of time in the baseline phase, large and often dramatic blood pressure reductions only appeared one to three weeks after the initiation of treatment. This would strongly suggest that it was the treatment itself that was responsible for the observed change, rather than extraneous factors. It would be highly unlikely that, for 12 individuals, some other factors would be operating to lower their blood pressure in such a consistent pattern, shortly after the initiation of treatment.

Magnitude of Change

Mean

The averages for each of the research phases are outlined in Table 2. In general, each client's average systolic and diastolic blood pressure shifted from the baseline average in response to the treatment phases. In terms of systolic blood pressure, for 7 of the 12 participants the phase 2 and phase 3 averages were progressively lower than the baseline average. For four clients, the phase 2 average was lower than at baseline, but increased somewhat in phase 3. Despite this, their phase 3 average was still

quite a bit lower than their average blood pressure in the baseline phase. For one participant (client 7), her phase 2 average was slightly higher than in the baseline phase, but decreased in phase 3 below the baseline average.

In terms of diastolic blood pressure, for 10 participants the phase 2 and 3 averages were progressively lower than in the baseline phase. For the remaining two clients, their phase 2 average was lower than at baseline, but increased slightly in phase 3. As with the systolic pressures, however, the phase 3 average was still lower than in the baseline phase.

The actual differences between the phase 3 and phase 1 averages are also shown in Table 2. The size of the systolic blood pressure reductions range from 2 to 17 mmHg, and the diastolic reductions range from 4 to 15 mmHg.

In Table 3, the blood pressure reductions are grouped according to the type of medication, if any, each of the clients was taking. There did not appear to be any consistent pattern linking the size of the reductions in systolic blood pressure and type of medication. Surprisingly, the unmedicated clients did not show any more dramatic reductions than did those in the medicated groups. In terms of reductions in diastolic blood pressure, the four clients taking diuretics only did show a pattern of large reductions. Those reductions were, in fact, greater than the reductions shown by the unmedicated clients.

Table 2

Means and Differences Between Phases of Treatment

		Phase 1 Baseline Mean	Phase 2 Trance Training Mean	Phase 3 Home Practice Mean	Difference (Phase 3- Phase 1)
Program 1					
Client 1	SBP	118	112	102	-16*
	DBP	74	71	70	-4
Client 2	SBP	144	124	127	-17*
	DBP	94	76	79	-15*
Client 3	SBP	115	114	108	-7
	DBP	88	80	74	-14*
Client 4	SBP	133	124	122	-11*
	DBP	96	87	82	-14*
Client 5	SBP	164	145	154	-10*
	DBP	79	75	71	-8*
Client 6	SBP	144	143	138	-6
	DBP	80	74	72	-8*
Program 2					
Client 7	SBP	111	112	109	-2
	DBP	77	75	69	-8*
Client 8	SBP	132	119	121	-11*
	DBP	89	84	80	-9*
Client 9	SBP	111	105	97	-14*
	DBP	69	64	62	-7*
Client 10	SBP	130	123	120	-10*
	DBP	81	74	70	-11*
Client 11	SBP	127	117	112	-15*
	DBP	89	84	82	-7*
Client 12	SBP	152	140	147	-5
	DBP	93	85	89	-4

SBP=Systolic Blood Pressure
DBP= Diastolic Blood Pressure
*Clinically Significant Difference

Table 3

Blood Pressure Reductions by Type of Medication

Type of Medication	Client	Systolic Reductions	Diastolic Reductions
No Medication	5	-10*	-8*
	6	-6	-8*
	12	-5	-4
Diuretic Only	2	-17*	-15*
	3	-7	-14*
	4	-11*	-14*
	8	-11*	-9*
Beta-blocker only	1	-16*	-4
	9	-14*	-7*
Converting Enzyme Inhibitor	7	-2	-8*
Beta-blocker and Diuretic	10	-10*	-11*
	11	-15*	-7*

*Clinically Significant

Clinical Significance

Those blood pressure reductions that were clinically significant, based on the criteria outlined in Chapter 3, are indicated in Table 2. For 11 of the 12 study particpants, the systolic and/or diastolic blood pressure reductions were found to be clinically significant. Of this group, seven clients showed reductions in both systolic and diastolic pressures, one client showed a reduction in systolic only, and three clients showed reductions in diastolic pressure only. Only one participant (client 12) did not show clinically significant reductions in either systolic or diastolic blood pressure.

In summary, and to answer the first research question, the physiological evidence does suggest that Ericksonian hypnosis is clinically effective in lowering the blood pressure of hypertensive individuals. The effects of the treatment usually seemed to take two or three weeks to be reflected in a large systolic and diastolic reduction. A somewhat surprising result was that the unmedicated clients did not show any greater reductions than the medicated clients. In fact, the most consistently large reductions in diastolic blood pressure were shown by those participants taking diuretics.

In Session Change

Research Question 2: Is there evidence to suggest that Ericksonian hypnosis is effective in lowering blood pressure during

the trance sessions, based on physiological data?

The in session changes in systolic and diastolic blood pressures are outlined in Table 4. As can be seen, the most common pattern was that the first blood pressure reading after the trance sessions had increased over the 'pre' level. This was the case for seven clients in their systolic blood pressure, and for nine clients in their diastolic blood pressure. Thus, during or shortly after the trance sessions, both systolic and diastolic blood pressure rose to above the 'pre' session level. This increase occurred despite the fact that most clients reported feeling very relaxed and comfortable during and after the trance sessions. In answer to the research question, the physiological evidence suggests that Ericksonian hypnosis does not lower blood pressure during the trance sessions but, in fact, appears to have a pressor effect.

Self Report Change

Research Question 3: Were other changes, for example in client lifestyle, health supportive behaviors, drug therapy regime, or in symptoms or difficulties, attributed to the treatment program, according to client self report?

Table 4

In Session Change*

Trance Session		1	2	3	4
Program 1					
Client 1	SBP	+4	+16	+13	+14
	DBP	+3	+16	+11	+15
Client 2	SBP	-5	+4	+6	+5
	DBP	+1	+7	+6	+5
Client 3	SBP	+6	-4	-3	-11
	DBP	-3	+6	-7	+13
Client 4	SBP	+20	+13	+1	+26
	DBP	+33	+34	+5	+16
Client 5	SBP	0	-18	+1	-17
	DBP	+10	+4	+1	-7
Client 6	SBP	-3	+27	+1	+5
	DBP	+11	+8	+3	+17
Program 2					
Client 7	SBP	+3	+10	+7	-5
	DBP	+5	+5	+3	-2
Client 8	SBP	+10	+18	+21	+5
	DBP	+9	+11	+11	+7
Client 9	SBP	0	+6	+3	-7
	DBP	+7	+2	+4	0
Client 10	SBP	-7	-4	-10	-10
	DBP	-5	+5	-7	-1
Client 11	SBP	-7	-4	-5	-17
	DBP	+4	+10	+2	-8
Client 12	SBP	0	0	+2	-11
	DBP	-6	+8	-4	-1

SBP=Systolic Blood Pressure
DBP=Diastolic Blood Pressure

* Difference between Post reading #1 and Pre session average

Program 1

Client 1

Client 1, a 53 year old male university professor, began the treatment program highly skeptical of hypnosis. Depsite this, he hoped to lower his blood pressure, possibly to the point of dispensing with his medication. He did not experience any side-effects of his beta-blocker medication, nor did he experience any symptoms or difficulties such as headaches or insomnia. This client believed he had a stress-free lifesytle, particularly since his job was secure and free of pressure. Prior to the start of the program, he reported that his blood pressure was in the normal range, usually about 130/92, although his readings in the first week of the program were 124/78. At the end of the baseline phase, his average blood pressure was a low 118/74.

In the trance sessions, this client surprised himself by experiencing a medium to deep trance easily. He enjoyed his trance experiences, and listened to the hypnosis tape approximately five times a week. He often fell asleep while listening to the tape, but would awaken when it ended, feeling refreshed.

At the end of the program, he believed he had accomplished what he had hoped, and felt the program had been "very effective". His average blood pressure in phase 3 was 102/70, a clinically significant reduction of 16 mmHg systolic, and a decrease of 4 mmHg diastolic. He also noted changes in his mood ("more relaxed"), and felt he was coping better with stress, and experienced an improved

sense of well-being as he was more confident about his blood pressure condition. He left the program feeling excited about the potential of self-hypnosis to improve many aspects of his life.

Followup

As a result of his lowered blood pressure levels, this client went off his medication, with his physician's approval, prior to his summer holidays. As his holiday involved extensive travel abroad and distant relatives, he felt under considerable stress. On a number of occasions he became worried that he may have a heart attack because of symptoms such as a rapid beating of his heart and a vibrating feeling in his internal organs. While travelling on business a month later, which was also very stressful, he began taking his medication on alternate days. On two followup sessions that fall, three months after completing the treatment program, his blood pressure measurements showed a dramatic increase of 20 mmHg systolic and a slight increase of 3-5 mmHg diastolic. Thus, his blood pressure had returned to approximately his pre-treatment level. Due to his many travels, he had not listened to the hypnosis tape for several months. A third followup session was not conducted as this client's numerous medication changes since the end of treatment made his blood pressure data difficult to interpret.

Client 2

This 40 year old male client participated in the program in the hope of bringing his hypertension under control, and ultimately eliminating the need for medications. Despite the fact that he was taking a diuretic, his blood pressure level usually exceeded 140/90. He attributed much of this to his stressful job as an education consultant, although he admitted he tended to be a "workaholic". He often experienced difficulty with headaches, feelings of anxiety, restless sleep, and on almost a daily basis the inability to relax. His average blood pressure by the end of the baseline phase was an elevated 144/94.

This client proved to experience trance deeply and easily. He looked forward to the individual sessions, and found that afterwards he was relaxed and more peaceful with himself. During this period he felt he processed many personal issues. His average blood pressure was the lowest in this phase, suggesting that, for him, the individual attention and focus was very important.

In the home practice phase, this client listened to the hypnosis tape approximately 5 times a week. He enjoyed the tape, even though he thought he was usually asleep throughout. By the end of this phase, his average blood pressure had dramatically decreased to 127/79, well within the normal range. This represented clinically significant reductions of 17 mmHg systolic and 15 mmHg diastolic. He reported that he no longer suffered from headaches, feelings of anxiety, or restless sleep, and only

occasionally felt unable to relax. He had made positive changes in his diet, felt he coped better with stress, and thought he showed some reduction in his tendency towards "workaholism". He also believed his mood was "more stable", and that he had, in terms of his sense of well-being, "an improved sense of balance in some key areas -- professional, relationships, and spiritual". He believed he had accomplished what he had hoped -- "beyond wildest expectations" -- and felt the treatment had been very effective.

Followup

In the followup sessions, this client's blood pressure reductions were well maintained. It was interesting that at the first followup session, his systolic blood pressure showed a further reduction of 13 mmHg since the end of treatment. In the previous few weeks he had continued to listen to his hypnosis tape four or five times a week. However, by a month or two later, his blood pressure had returned to the level it was at when the program ended. He reported that his listening to the tape had decreased to about twice a week.

Client 3

Client 3, a 34 year old female bookkeeper, volunteered for the program with the hope of learning to relax and calm down, and possibly to eliminate her blood pressure medication. She believed that the stress of her job, and the continual working under unrealistic time deadlines, contributed to her high blood

pressure. She suffered from a number of difficulties: headaches twice a week, insomnia, feelings of anxiety, restless sleep, and an inability to relax. Her average blood pressure in the baseline phase was 115/88, well controlled through her diuretic medication.

In the trance sessions, this client often appeared uncomfortable with her feelings of sadness which often surfaced. After the sessions she would briefly mention some personal issues which she seemed to be repressing in her day-to-day life, wanting to control her feelings and not deal with the problems. As a result, she seemed nervous about 'letting herself go' in trance, and thus usually experienced only a light trance state.

By the end of the program, client 3's average blood pressure had dropped to 108/74, a decrease of 7 mmHg systolic and a clinically significant reduction of 14 mmHg diastolic. She reported that she listened to the audiotape about twice a week.

This client did not wish to attend more sessions for followup, and did not return her treatment evaluation form. At last contact, she telephoned to say that she had visited her physician, who obtained a blood pressure reading of 110/70. Her physician had been quite pleased with this, and if this new level proved to be stable over time, he would wean her off her medication.

Client 4

Client 4, a 60 year old homemaker, had been taking diuretic medication for about 20 years. She was not sure what she hoped

would happen in the treatment program, other than, in stressful situations, using the relaxation methods she would learn to help her relax. She suffered from headaches almost every morning on rising, and believed this may be due to a blood circulation problem that had developed in the previous year. Her blood pressure average in phase 1 was 133/96, indicating an elevated diastolic level despite the medication.

This client experienced a light to medium trance easily. She listened to the audiotape about four times a week. By the end of the program, her blood pressure had dropped to an average of 122/82, indicating clinically significant reductions of 11 mmHg systolic and 14 mmHg diastolic. In addition, she reported an increased sense of well-being, a "feeling good about what I'm doing". She still had headaches most mornings on rising, and even though she had little difficulty falling asleep, would use what she had learned to relax even more quickly. She felt she had accomplished what she had hoped, and felt more relaxed and content with herself since the beginning of the program. There had been no change in her medication, although she had discussed the matter with her physician a month or two previously.

Followup

During the followup period, this client travelled extensively with her family, and had thus not been able to listen to the hypnosis tape. Over the three month period, her systolic and diastolic blood pressure reductions were well maintained.

Client 5

Client 5, a 63 year old travelling salesman, was the husband of client 6. Both of them had essential hypertension, yet because of some unfortunate experiences in the past with the medical system, were distrustful of doctors and drug therapy. Therefore, neither was on hypertension medication despite readings greater than 140/90. Client 5 had a stroke about three years previously. He wished to participate in the treatment program to bring his blood pressure to within normal limits without the use of medication. He did not experience any symptoms or difficulties, but found his job, which required considerable travel, to be very stressful. In the baseline phase, his average blood pressure level was 164/79, indicating an elevated systolic pressure.

In general, this client experienced a medium to deep trance easily. After the sessions, both he and his wife often reported some feelings of sadness over the loss of their son who died, they believed unnecessarily, a few years previously. Both had thought they had adjusted to his death, and were surprised to find these feelings and memories surfaced while in trance.

At the end of the program, client 5's blood pressure had dropped to an average of 154/71, reflecting clinically significant reductions of 10 mmHg systolic and 8 mmHg diastolic. It is important to note that his average systolic pressure had dropped to 145 in the trance training phase, and thus increased in phase 3. It may have been that this client also responded more to the

individual attention and focus in the trance sessions, than to the general themes and focus of the audiotape. He had listened to the hypnosis tape about 6 times a week.

This client felt he had accomplished what he had hoped, and noted he was coping better with stress and that his breathing had deepened as a result of the treatment. As his systolic pressure was still well above normal, it was suggested that he visit a physician.

Followup

On followup visits, client 5's systolic blood pressure showed an increase to the 160's, although his diastolic pressure stayed low. He was still listening to the audiotape several times a week as he found it very relaxing. He reported that he had decided to retire as the stress he experienced in his job was not worth the cost to his health.

Client 6

Client 6, a 57 year old female homemaker, hoped to learn self-hypnosis to promote good health -- reduce her hypertension, control weight, and be able to relax during anxious times. As she put it, "I believe self-hypnosis is a God-given gift that mankind has forgotten how to utilize". The only difficulty she occasionally experienced was feelings of anxiety. Her average blood pressure level in the baseline phase was 144/80, indicating an elevated systolic pressure.

This client easily experienced a light to medium trance in each of the sessions, which she found very relaxing. She listened to her hypnosis tape about six times a week, often twice a day as she found it helped her relax. By the end of the program, her average blood pressure was 138/72, a reduction of 6 mmHg systolic and a clinically significant decrease of 8 mmHg diastolic. In addition, she reported having more energy and feeling calmer. She had made positive changes in her diet and recreation, and believed she coped better with stress by deep breathing and listening to the hypnosis tape. She felt she had accomplished what she had hoped, as she had learned "...it is possible to lower my blood pressure through hypnosis/relaxation, exercise, deep breathing, diet, with no need for blood pressure medication". She believed the treatment had also been effective for her in other areas of her life, as "it has opened up new avenues of thought towards taking control of other problems such as weight control, shyness, etc."

Followup

In the followup sessions, this client's blood pressure reductions were maintained and, in fact, seemed to be on a slight downward trend. She was still listening to the audiotape, but a little less often, about two or three times a week.

Program 2

Client 7

Client 7, a 39 year old female graduate student, had previously tried a number of alternative methods to lower her blood pressure such as weight reduction, physical exercise, and relaxation exercises, none of which had made a difference. In the program, she hoped to learn a technique to lower her blood pressure without drugs, and to control her ability to relax. Although her blood pressure was controlled through medication (a converting enzyme inhibitor), she didn't like the idea of long-term use of drugs. This client found the demands and pressures of being a full-time student as well as being a mother and wife, very stressful. She experienced difficulties with anxiety, restless sleep, and the occasional inability to relax. She also believed her high blood pressure affected her relationship with her husband, who tended to worry about her health. Her average blood pressure in the baseline phase was a low 111/77.

This client enjoyed the trance sessions immensely, and found them very relaxing. She was able to experience a medium to deep trance quickly and easily. During this period, this client reported that she was struggling with issues of control and responsibility. She began to let go of her need to control herself, others, and situations, and began to take time for herself, rather than giving all her time and energy to others. She also reported on a number of occasions feedback from her spouse and

co-workers as to how relaxed she looked, and her slower and more calm pace. On the average, she listened to the hypnosis tape four times a week.

By the end of the program, this client's average blood pressure was 109/69, a decrease of only 2 mmHg systolic, and a clinically significant reduction of 8 mmHg diastolic. She reported still having difficulty with feelings of anxiety once every month or two, and the occasional inability to relax. She had made positive changes in physical exercise, felt she coped better with stress, felt less overwhelmed with work, and in terms of her sense of well-being, felt calmer, less anxious, and less reactive to issues and crises. She had also noticed a change in her family relationships, feeling "less intense and reactive to spouse and kids". Although there had been no change in her medication, she and her physician were discussing the possibility of going off the drugs for a trial period.

This client found the treatment most helpful in several ways. She reported:

> I have a much improved sense of being in charge of my own destiny, ie., of being able to choose how much energy, distress I will invest in the stressors which surround me. I believe that I am developing an increased sense of self-control vis a vis my emotional reactions. I like the experience of interceding in my own reactions before they become more 'catastrophic' than the situation calls for. It

also enables my husband to be less nervous about how I'll react.

In general, she found the treatment to be effective both personally and professionally.

Followup

In general, this client's blood pressure reductions were well maintained, although she did not always consistently listen to her hypnosis tape. Her physician had been pleased with her lower blood pressure level, and had told her she could go off her medication for a trial period. Two weeks prior to the last followup, this client elminated her medication. At that followup session her blood pressure was still low at 111/69.

Client 8

Client 8, a 52 year old male executive director, volunteered for the program as he "would rather not be on drugs". He experienced his job as quite stressful, suffered with headaches about twice a month, and sometimes had a restless sleep or found himself unable to relax. His average blood pressure during baseline was 132/89.

This client was able to experience a medium to deep trance easily. At times, he felt somewhat consciously alert while in trance, while at the same time experiencing spontaneous dream-like sequences, and acting on these through unconscious movements. He listened to his hypnosis tape, on the average, two times a week.

By the end of the program, his average blood pressure was 121/80, showing clinically significant reductions of 11 mmHg systolic and 9 mmHg diastolic. He still reported headaches about twice a month, as well as the inability to relax. No change had been made in his medication, nor had he discussed this possibility with his physician. He believed he had accomplished what he had hoped, and that the treatment had been helpful as it made him more conscious of how relaxation can have a physiological effect to lower his blood pressure. He only expressed his original skepticism at the end of the program: "You have removed my skepticism completely about what I thought was a 'hokey' approach. I still don't believe you put me into a trance".

Followup

At the first followup session, this client's diastolic blood pressure showed a further 5 mmHg decrease. This, as well as his reduced systolic blood pressure level, was maintained in the remaining sessions. During this three month period he had continued to listen to his hypnosis tape, on the average, about once a week.

Client 9

Client 9, a 42 year old homemaker, volunteered for the program in the hope that she could "throw away" her hypertension medication. She experienced occasional difficulty with headaches, insomnia, clenching of teeth which had caused her teeth to loosen,

and an inability to relax. She found the many demands required of her as a primary parent and homemaker to be be quite stressful. At the end of the baseline phase her average blood pressure was a very low 111/69.

This client was able to experience a light trance without difficulty. She listened to her hypnosis tape about four times a week, although initially she found it very difficult to make herself unavailable to her family for 30 minutes during her day. In a sense, 'finding' and taking a 1/2 hour break to listen to the tape was an important learning experience for her.

By the end of the program, this client's blood pressure had decreased to an average of 97/62, despite her initial low pressure level. These reductions of 14 mmHg systolic and 7 mmHg diastolic were clinically significant. This client reported no longer having difficulty with insomnia or the inability to relax, and the frequency of her headaches had decreased. In terms of her mood, she was more aware of her ups and downs and had "compensated in these areas". There had been no change in her drug therapy program, although her blood pressure was being monitored closely by her physician in the hope that her low pressure level would be stable and she could eliminate her medication completely. She found the treatment helpful in that she learned to make time for herself and relax.

Followup

This client's blood pressure reductions were generally maintained during the followup period. She listened to her tape approximately once or twice a week, although she still had periods where she had difficulty 'finding the time'. No changes had been made in her drug therapy program.

Client 10

This male client, a 44 year old computer programmer, was one of the more heavily medicated participants, taking both a beta-blocker and a diuretic. He had volunteered for the program in the hope that hypnosis would be an alternative or supplement to the traditional methods of blood pressure control. He did not experience his job as particularly stressful, nor did he have any symptoms or difficulties associated with stress or his high blood pressure. His average blood pressure in the baseline phase was a well-controlled 130/81.

The trance sessions were an enjoyable, relaxing, and interesting experience for this client, who appeared to experience a light to medium depth of trance. On the average, he listened to his hypnosis tape three times a week. At the end of the program, this client's average blood pressure was 120/70, a clinically significant reduction of 10 mmHg systolic and 11 mmHg diastolic. There were no changes in his drug therapy program, nor had this possibility been discussed. He believed he had accomplished what

he had hoped, as he had learned about self-hypnosis and relaxation techniques. He thought the treatment had been effective, in the short-term, in lowering his blood pressure level.

Followup

This client's systolic blood pressure reductions were well-maintained, although a slight increasing trend was evident in his diastolic pressure. In the first month of the followup period, he had listened to his tape about twice a week, but in the last two months this had tapered off to approximately once every two weeks.

Client 11

This 41 year old male client, an assistant manager at a major grocery store, found his job and its many demands and responsibilities to be extremely stressful. He hoped to lower his blood pressure and get off drugs as a result of the treatment program. This client was also quite heavily medicated, taking both a beta-blocker and diuretic daily. He did not report any symptoms or difficulties prior to treatment. His average blood pressure in the baseline phase was 127/89.

In the trance sessions, this client appeared to experience a light to medium trance fairly easily, once he had let go of his preoccupation with work and time pressure. He only listened to his audiotape about 3 times a week as he often had difficulty 'finding' the time.

By the end of the program, his average blood pressure had decreased to 112/82, showing clinically significant reductions of 15 mmHg systolic and 7 mmHg diastolic. He believed he had accomplished what he had hoped by the lowering of his blood pressure. There had been no change in his medication, and he had not discussed this possibility with his physician.

Followup

This client's blood pressure reductions were generally maintained, and he continued to listen to his tape about twice a week. No changes were made in his hypertension medications, nor was the possibility ever discussed with his physician.

Client 12

Client 12, a 61 year old male professor, had taken himself off diuretics a year previously as he had too many negative side effects. Despite his elevated blood pressure, he had been unmedicated since that time. He experienced his job as very stressful, and would often take work home with him evenings and weekends, just to keep up. He also felt quite stressed at home, and reported that he "doesn't usually have time to relax". He suffered from a number of difficulties -- periods when his heart would beat extremely rapidly, frequent insomnia and restless sleep, and, "habitually", the inability to relax. He hoped to resolve his inability to unwind both in his daily life and before "attempting" sleep, as a result of his participation in the treatment program.

His average blood pressure in the baseline phase was an elevated 152/93.

This client experienced a medium level of trance fairly easily, and found the sessions very relaxing. During these sessions, he discovered that he was usually quite tense in his face and shoulder muscles, and this awareness helped him to consciously relax these muscles throughout the day. He occasionally felt that his body was 'drifting off' in trance, while his mind was preoccupied and active, and this was a similar experience as when he 'tried' to fall asleep at night. He listened to his hypnosis tape approximately three times per week.

As a result of the regular monitoring of his blood pressure during the program, there was found to be a close relationship between the amount of sleep he had received the previous night and his blood pressure level. On those nights when he had received only a few hours of sleep, or had a very restless sleep, his blood pressure was much more elevated than when he was well rested. In addition, his diet was also found to be an important factor as when he ate a regular and nutritious diet with no alcohol, his blood pressure was usually quite low.

By the end of the program, his average blood pressure was a still elevated 147/89, showing a decrease of 5 mmHg systolic and 4 mmHg diastolic. This was the only client for whom there were no clinically significant reductions in either systolic or diastolic blood pressure. As with clients 2 and 5, his average blood

pressure was lowest during the trance training phase. He still experienced some difficulties with insomnia and restless sleep, although he felt his sleeping habits had improved somewhat by listening to the tape before retiring. He had made positive changes in his diet, and believed the program had helped him learn to relax. To some extent, he believed he had accomplished what he had hoped, although he reported "the elimination of insomnia and the lowering of my blood pressure level is much more complex than I had anticipated". In general, he believed the treatment had been helpful as "the hyperkinetic nature of my blood pressure patterns was unknown to me prior to this treatment. My susceptibility to emotional and work stresses is revealing".

Followup

This client's blood pressure levels, during the followup period, continued to be highly variable, influenced by the amount of sleep he had been receiving. During the third followup session this client experienced an extremely rapid beating of his heart, and his blood pressure was artificially high. Thus, data from this followup was not included. Since the end of treatment, he had made further changes in his diet, completely eliminating all stimulants such as caffeine. He was advised to see his physician as his blood pressure was consistently in the elevated range.

General Trends

Despite their lack of side-effects, most participants volunteered for the treatment program in the hope of reducing or eliminating their hypertension medication. Those unmedicated participants wished to control their blood pressure, or bring it to within the normal range, without having to go on drug therapy. All of the clients were able to experience trance to some degree, and for 3 people their blood pressure reductions were greater during the individual trance sessions than when they were listening to the hypnosis tape at home.

In answer to the research question, many of the participants reported positive changes in symptoms or difficulties they were experiencing prior to treatment. The most commonly reported improvements were a greater ability to relax and cope with stress, and an improved sense of well-being. Some, but not all, participants also made positive changes in their diet and/or recreation and exercise regime. In general, the participants seemed to develop a greater sense of responsibility for their physical and mental health as a result of the treatment.

By the end of the treatment programs, none of the participants had his/her drug therapy program altered in any way. However, many had become more of an active participant in the physician/patient relationship, discussing the advantages and disadvantages of reducing or eliminating their medications.

Most participants believed, at the end of the program, that they had accomplished what they had hoped, despite the fact that there were no changes in medication usage. They also considered the treatment to be very effective in treating their hypertension, and this was not at all related to their actual amount of reduction in their blood pressure. Even after the requirements of the program had ended, many continued to listen to their hypnosis tape as they found it very relaxing and enjoyed the trance experience.

Maintenance of Change

Research Question 4: Are any reductions in blood pressure levels or other changes maintained over time, based on followup measurements and self report data?

For the majority of the study participants, blood pressure reductions were maintained during the followup period, as can be seen in Table 5. Also, self report changes were generally maintained during the three month period. Although they were not requested to continue listening to their hypnosis tape, most of the participants did so, at least once or twice a week. It seemed, in fact, that this continued 'practice' was necessary to maintain a consistently low blood pressure level.

Only two of the participants had the opportunity to have their drug therapy regime changed as a result of treatment. One client's

Table 5

Followup Blood Pressure Readings

		Phase 3 Average	Followup 1	Followup 2	Followup 3
Program 1					
Client 1	SBP	102	124	122	--
	DBP	70	75	73	--
Client 2	SBP	127	114	125	127
	DBP	79	76	79	81
Client 3	SBP	108	--	--	--
	DBP	74	--	--	--
Client 4	SBP	122	115	120	124
	DBP	82	73	80	84
Client 5	SBP	154	163	168	160
	DBP	71	69	74	70
Client 6	SBP	138	137	136	135
	DBP	72	73	68	70
Program 2					
Client 7	SBP	109	111	110	111
	DBP	69	65	71	69
Client 8	SBP	121	125	123	114
	DBP	80	75	74	79
Client 9	SBP	97	96	101	96
	DBP	62	62	65	65
Client 10	SBP	120	120	118	122
	DBP	70	71	74	75
Client 11	SBP	112	118	116	109
	DBP	82	84	84	80
Client 12	SBP	147	162	150	--
	DBP	89	91	90	--

SBP=Systolic Blood Pressure
DBP=Diastolic Blood Pressure

blood pressure rose after he discontinued his medication, although the fact that he was travelling extensively, experiencing a lot of stress, and not listening to his hypnosis tape makes it difficult to evaluate the outcome. He had been very nervous while not taking his drugs, believing he may have a heart attack at any time. For the other client, she was able to eliminate her medication and her blood pressure reductions appeared to be maintained. The other participants did not pursue the possibility of reducing or eliminating their medications with their physicians.

Summary

Despite the finding that, for most of the study participants, the trance sessions seemed to have an immediate pressor effect, in the long-term, over the 12 week study period, most clients' systolic and/or diastolic blood pressure decreased by a clinically significant amount. A fairly consistent change in each individual's blood pressure trends could only be observed one to three weeks after the initiation of treatment, and this strongly suggested the treatment was responsible for the change. Thus, Ericksonian hypnosis did appear to be clinically effective in lowering the blood pressure of hypertensive individuals. For many of the participants, the reductions were maintained three months post-treatment, in the followup phase.

From the self report data, subjective improvements were noted in many of the participant's symptoms, their ability to relax, deal with stress, and in their overall sense of well-being. The treatment was thought to be effective in a number of additional ways, most importantly in a greater sense of responsibility and participation in one's health maintenance. Some of the treatment components which may have brought about the positive physiological and self report results will be discussed in the following chapter.

CHAPTER V

DISCUSSION

In this chapter, the possible 'active ingredients' involved in the treatment which may have been responsible for the long-term decreases in blood pressure will be discussed. Also, two hypotheses are explored and a model is proposed which may help to explain both the short-term increase in blood pressure during the trance state, and the overall reductions in blood pressure over the study period. The findings of this study are compared to the reported results of other treatment approaches, and the therapeutic significance of the findings are outlined. Finally, issues as to the generalizability, replicability, and limitations of the study are discussed, and suggestions are made for further research.

Possible Active Ingredients

Research Question 5: Can specific 'active ingredients' of the treatment which promoted improvement be identified?

It is difficult to answer this question based on feedback from clients as most found it difficult to verbalize their experiences in trance, or to understand at a conscious level what had happened internally that their blood pressure decreased over time. Most reported feeling much more relaxed after a trance session than before, yet often their blood pressure level was actually higher

than pre-session. Thus, this question will be explored based largely on therapist observations and hunches, as without elaborate monitoring equipment it is difficult to identify the specific behavioral and physiological mechanisms responsible.

Based on the trance work with the 12 study participants, it would seem that four 'active ingredients' may be involved in the observed changes in blood pressure. Although these will be discussed separately, there is considerable overlap in each ingredient and its influence.

1. General therapy and relationship factors such as time and attention on a health problem, continual monitoring of blood pressure, therapist time and attention, and the quality of the therapist-client relationship.

To some degree, these variables were an important component of the treatment. Unlike the irregular and time-limited relationship with a physician, the treatment required ongoing, twice weekly contact with the therapist. In fact, the effectiveness of the type of treatment requires a high degree of trust and rapport between therapist and client, and the regular contact necessitated by the monitoring of blood pressure, particularly in the baseline phase, provided a context in which a personal relationship could be built. A strong personal relationship was established with each client, and at the end of the study many reported they would miss their blood pressure sessions and contact with the therapist. In addition, the time each spent focused on their health problem,

having their blood pressure monitored and obtaining feedback as to the possible influence of their recent diet, stresses and lifestyle, placed responsibility for these influences back on themselves. With an increased awareness of how their internal state, and their usual way of coping with stress, affected their blood pressure level, the responsibility for change was in their own control, rather than in the hands of an expert.

2. Physical and mental relaxation

Not only did most clients report feeling relaxed during the trance sessions, they also appeared relaxed. This was indicated by the usual signs of parasympathetic activity such as relaxed muscle tone, and a slowing and deepening of the breath. Some clients thought they had fallen asleep during the trance, or commonly reported wishing they could have a nap after reorienting from trance. Many clients reported feeling calm and at peace, and able to eliminate their almost-constant distracting thoughts, worries and concerns during trance. This 'relaxation response' was most pronounced for those clients who came to a session extremely tense and preoccupied with work, and later left the session feeling very relaxed and at peace with themselves.

The need to relax was a common theme for the study participants. Many reported that their physicians had told them they needed to relax and 'take it easy' more, and yet they didn't know how to relax. Despite many of the participants' stressful jobs and lifestyles, very few incorporated relaxation into their

daily life, in any form. In this treatment program they experienced the feeling of relaxation and of having 'nothing to do'. Many listened to their hypnosis tape when they needed to unwind, and a common report at the end of the program was being able to relax more.

However, if the effect of the trance sessions was purely an activation of the parasympathetic system, the participants' blood pressure post-session would have consistently shown a decrease. As most clients' blood pressure actually rose during trance, it would seem that more was involved than simply the experience of relaxation.

3. The trance state

It seemed that the experience of the trance state itself was an important and valuable learned skill for the study participants. In fact, even after the program ended, many of the participants continued listening to their tape on a regular basis, recognizing some need for a trance experience. The trance state is an altered state of consciousness which has an inward focus, and the emphasis in the trance sessions was on experiencing without having to try, direct, control, or do or know anything. For most of the clients, this was a very new way of experiencing themselves. In retrospect, many of the clients could be described as very externally focused people who were often preoccupied with time, accomplishing and producing, and the demands of others or the work environment. It may be that their experience of themselves in

a trance state was a counter-balance to their usual external orientation. Developing the ability to move to an inward focus of attention may help balance out an overly external orientation. The physiological effect could also reflect this balance, allowing the blood pressure system to self-regulate.

It has been hypothesized that the trance state shifts one to a predominant functioning of the right hemisphere of the brain (Erickson, Rossi, & Rossi, 1976). As most of us spend our waking day predominantly in the left hemisphere, to varying degrees, we may have some physiological and/or psychological need to balance our system out. For people who are extremely left-brain oriented, this need may be even greater.

4. Unconscious processing

During many of the trance sessions, various indicators of unconscious processing could be observed. These included involuntary body movements, spontaneous surfacing of feelings and memories and, quite commonly, periods of rapid eye movements. Rapid eye movements, a manifestation of the dreaming stage of sleep, have been hypothesized to be an indicator of information processing, nonspecific arousal, and dream imagery scanning (Cohen 1979). Often, clients would report, post-session, their dream-like experiences.

Also, the majority of the participants during this period of the program seemed to identify and struggle with issues which had surfaced for them. Some of these included their responses to

external stresses and demands of others, unresolved feelings from past experiences, their attitudes towards time, the need to look after one's own needs, and so on. Although some were aware of these issues prior to treatment, particularly those who were experiencing 'stress', very few seemed to have been consciously attempting to resolve them in their day-to-day life.

This would seem to indicate that the indirect suggestions and stories had the effect of activating each individual's unconscious processes. The general metaphors presented for balance and the regulation of blood pressure were thus received by each individual according to their own experiences and needs. For each participant, the issues that were triggered were unique, and yet, seemed to have been in some way related to their chronic elevation of blood pressure.

However, not all individuals showed or reported evidence of this. Some shared very little of their inner feelings or experiences, and appeared uncomfortable talking about themselves. Whether these people were aware of any personal processing remains unknown. Despite this, reductions in their blood pressure levels were found.

It is thus hypothesized that all four factors or 'ingredients' were involved in the decrease of each participant's blood pressure over time. Whether each is a necessary or sufficient condition alone cannot be answered in this study. These 'ingredients' may also help to explain the surprising finding of an in session

pressor effect of the trance sessions. Two major hypotheses are suggested, based on findings and concepts in related areas of research.

1. The trance state is physiologically similar to the rapid eye movement (REM) stage of sleep.

Although sleep is associated with a fall in blood pressure, during REM sleep blood pressure becomes highly variable, and pressor responses have been reported. For example, Snyder et al. (1964) found increases of 30 mmHg in systolic blood pressure, over an interval of a few minutes, during REM sleep, and Orem and Barnes (1980) found transient increases as high as 40 mmHg in arterial blood pressure. The latter authors found that, for hypertensive patients, the absolute magnitude of the blood pressure change was greater than in normal subjects, although the percentage change was similar.

In addition to the variability of blood pressure and the frequent pressor responses, other similarities between the trance and REM state can be found. A number of studies have found that, from the characteristics of dream content, problem solving occurs in dreaming (Cohen, 1979). This is a symbolic, rather than literal, activity, and the symbolic solution of the problem may thus not be recognized as a solution when the individual awakens. This fits very well with the client's description of their dream-like experiences while in trance, and their processing of issues or problems which surfaced during the trance state. The

resolution of their issues, at a symbolic or unconscious level, may not be attributed or recognized as a solution, but only be reflected in the longer-term lowering of their blood pressure. For others, the process may occur at a completely unconscious level such that they are not aware of their own processing or solutions.

Cohen (1979) has hypothesized that a major characteristic of REM sleep is the heightened activity of right hemsiphere processing, and that this is compensatory for the predominant left hemisphere-mediation of information processing during wakefulness. This process is thought to be of special importance to people who, during wakefulness, are especially likely to: (1) emphasize left hemispheric functioning at the expense of right hemispheric functioning; and/or (2) tend to suppress right hemispheric functioning; and (3) individuals whose left and right hemispheric functions are highly compartmentalized. In other words, the REM state may be a particularly necessary, or counter- balancing state for people whose cognitive and personality styles suppress those characteristics attributed to the REM process, such as the expression of affective, intuitive, subjective, and sensual behavior.

In a review of the results of a number of studies of personality variables and left vs. right hemisphere differentiation, Cohen (1979) concluded that 2 personality variables strongly suggested the tendency for left hemisphere dominance over the right hemisphere during wakefulness. The first

was repression, defined as the suppression/control over affect and impulse. The second variable was field independence, characterized by: a high degree of analytic ability; an active and objective approach; a high degree of control of impulses and moods via defense mechanisms of intellectualization and isolation; and a low level of manifest anxiety. These individual differences were found to be associated with a compensatory motive to restore lost REM time, which thus provided preliminary support for his hypotheses on individual differences and the compensatory function and importance of REM sleep.

In a general way, many of the study participants fit the above descriptions. Some worked in occupations generally requiring left hemispheric activities such as engineering, bookkeeping, and computer programming. Many exhibited an objective and analytical personality style, and had difficulty talking about or freely expressing their feelings. Also, very few of the participants regularly spent time, or saw value in, an inward focused activity such as meditation or simply daydreaming. Thus, Cohen's hypotheses may hold considerable promise in understanding the personality characteristics of people who develop essential hypertension, as well as what may be needed as a counter-balance in treatment.

2. The trance state is characterized by the activation of <u>both</u> the sympathetic and parasympathetic systems.

In the trance state, it may be that most participants were in a mixed state such that aspects of both the sympathetic system, as

indicated by an increase in blood pressure, and the parasympathetic system, shown by a loose muscle tone, and slower, deeper breathing, were activated. The simultaneous excitations of both systems, referred to as mixed discharges, have been found to characterize Zen, Yoga, and Transcendental Meditation (Gellhorn & Kiely, 1972). In fact, parallels have been found between REM sleep and dreaming and the state of Yoga ecstasy. In both, cortical and visceral arousal is common along with an associated inhibition of muscle tone in the trunk and limbs. There is a loss of distinctiveness in the sense of space and time, as well as vivid perceptual imagery.

The authors have used the term 'nervous system tuning' to explain the neurophysiology of this phenomenon, which is believed to be fundamental to both the cause and cure of psychosomatic disorders and to the physiological component of meditation practices. Tuning can occur by direct stimulation of either the sympathetic or parasympathetic systems, by the use of drugs, or by types of mental activity.

Three stages of nervous system tuning have been outlined (Lex, 1977).

i) Response in either the sympathetic or parasympathetic system increases while at the same time reactivity in the other system diminishes.

ii) If stimulation of the sensitized system continues past a certain threshold, inhibition of the nonsensitized system

is complete. Also, there occurs a condition wherein stimuli which usually elicit response in the nonsensitized system instead evoke a response in the sensitized system. Thus, this stage is characterized by such reversal phenomena.

iii) Continued stimulation can lead to a third stage in which simultaneous excitations result. Mixed discharges produce mixed cortical response such that resting and alert rhythms appear. Thus, a tuned person is by definition uncritical and ripe for suggestion.

The chronic activation of both systems not only disrupts the physiologic homeostasis, but in the extreme can also lead to neuroses or psychoses. The mixed discharges characteristic of some of the meditative states indicates that the cultural explanations of individual experience and the specific location of neural excitation are both important in the development of disorders resulting from stage 3 tuning (Lex, 1977). Also, it would seem that the controlled and directed, short-term activation of a mixed discharge state may be functional, whereas the chronic, uncontrolled state would be dysfunctional for both physiological and psychological health.

Based on this hypothesis, essential hypertension is due to the chronic stimulation of the sympathetic nervous system and the mixed discharges resultant from stage 3 tuning. Lex (1977) stated that curing rituals, in effect, manipulate the nervous system to regain

homeostasis, thereby alleviating the dysfunctional symptoms which accompany mixed discharges. The trance sessions could also be seen as producing this homeostatic effect. Paradoxically, this is achieved by developing a mixed discharge state, but one that is of a shorter duration and is controlled and directed by the therapist with the aim of regaining a healthful state of balance. By the second or third trance session, this homeostatic effect is reflected in a dramatic lowering of blood pressure. The new balance is maintained by the incorporation of the trance state into everyday life.

A Proposed Model

From the study results and the research on the REM and mixed discharge states, a model which explains both the cause and alleviation of essential hypertension can be proposed. Although a general personality style of the 'hypertensive individual' was not expected, it seemed in retrospect that many of the study participants had common characteristics and coping styles. These characteristics may be typical of hypertensive individuals, and include a tendency for left hemisphere dominance, an analytic, objective, and intellectual approach to life, an external orientation and the suppression or control of affect. In addition, their perception and response to external stresses and demands involves working and trying harder and harder, with a view of time

as the 'enemy'. It may be that these characteristics and response styles lead to the intense and continued stimulation of the sympathetic system. When this continues over time, chronic elevated blood pressures may be produced by mixed discharges resulting from stage 3 tuning. In this state, even the need to relax is experienced as work, pressure, and the need to try.

The similarities between the trance state achieved with Ericksonian hypnosis, the REM state, and the mixed discharge state found in meditation, have been previously discussed. In some ways, the trance experience can be viewed as the controlled and directed development of a mixed discharge state for a short period of time. Thus, in this state there are indicators of both physical relaxation and mental activity. As in the REM state, in trance blood pressure can become highly variable, and whether it increases or decreases is likely based on the actual dream or psychic content. For example, if the individual is engaged in a pleasant and relaxing trance dream, the activity of their parasympathetic system would be predominant and blood pressure would decrease. If the individual is processing emotionally charged and previously suppressed issues, the sympathetic system would be predominant and his/her blood pressure would increase.

The trance state itself is based on the activation of the parasympathetic nervous system, in which the individual shifts to a predominant functioning of the right hemisphere of the brain. Thus, although a mixed discharge state is developed, it is in the

opposite direction of the individual's usual waking state. This shift seems to regulate and even out the whole bodymind system to achieve a more healthful balance. For some individuals, this state also allows usually suppressed emotions and issues which are in some way related to their unbalanced physiological and psychological state to emerge. As with night dreaming, this unconscious process, or problem-solving, occurs at a symbolic level, although in the trance state individuals may have more access to and awareness of their own ongoing process. This awareness may allow them to more fully integrate their solutions, reflected in attitude, value, and lifestyle changes, into their day-to-day life.

In this way, short-term increases in blood pressure during the trance state can lead to a longer-term decrease and regulation of this and other physiological and psychological processes. Spending some time each day in a trance state allows individuals to maintain their homeostatic balance of the sympathetic and parasympathetic systems, and the left and right hemispheres of the brain. In addition, for many individuals there is a need to more fully balance out their day-to-day functioning through lifestyle, values, and attitude changes.

Relative Effectiveness of the Treatment

Long-Term Change

For a number of reasons, it is very difficult to compare blood pressure reductions obtained in this study with the findings of the

various psychological treatments of essential hypertension. These reasons include: most studies use between-groups designs, and do not report individual data; differing pre-treatment levels of blood pressure of the study participants; many studies use unmedicated participants; and the varying ways that the results are presented, such as the use of percentage reductions only and not the absolute change. In general, however, it would seem that the blood pressure reductions achieved in this study are in a similar range to other approaches such as biofeedback and relaxation/meditation.

When the study results for the unmedicated participants are compared to the blood pressure reductions obtained in pharmacological treatments, the greater and more consistent effectiveness of drug therapy is readily apparent. For example, blood pressure reductions as high as 29.8 mmHg systolic and 24.8 mmHg diastolic have been reported with drug treatment (Luborsky et al., 1980; 1982). However, supplements or alternatives to drug therapy are needed for those individuals for whom medications are not sufficiently effective, who will not take medications, or for whom the side effects are intolerable.

In comparison to the hypnosis studies previously conducted, this study has provided further support that hypnosis can be effective in reducing the blood pressure of hypertensive individuals. The diastolic blood pressure reductions were slightly higher than those reported in the Friedman and Taub (1977) study.

Also, there were more consistent reductions for all participants than those found in the Case et al. (1980) study. Similar to the Deabler et al. (1973) study, hypnosis was found to take effect by the second or third session, and the reductions were maintained for all remaining sessions.

In general, compared to the results obtained using traditional, direct models of hypnosis, the Ericksonian model showed a more consistent pattern of blood pressure reductions for all participants. Unlike the previous studies, all participants were considered 'hypnotizable' and able to experience trance. Although the depth of trance experienced by each individual in each session varied, the blood pressure reductions did not appear to be related to depth of trance. Thus, an individualized approach using an indirect mode of communication would appear to hold considerable promise in the treatment of a wide range of hypertensive individuals.

In Session Change

The finding of a pressor effect of the trance sessions, along with reported subjective relaxation, was also found in a 1980 study by Case et al. However, in that study the authors questioned whether the intrahypnotic pressor response may be a characteristic of the induction method used, which required the performance of hypnotic tasks. Also, in the long-term, over a four month period, only 5 of the 15 participants showed reductions in their blood

pressure. In fact, the blood pressure of three of the participants actually rose during that period, while for the remaining clients no change was found. It may be that the mixed state of the participants in that study was triggered by the paradoxical situation of offering both suggestions for relaxation and the request for task performance, rather than triggering unconscious processing. Thus, it would not be surprising that, in the long term, blood pressure was not found to decrease for many of the study participants.

Therapeutic Significance of the Results

Although for most clients a clinically significant reduction in systolic and/or diastolic blood pressure was found, the therapeutic, or applied, significance of the results is difficult to assess as the majority of the participants' blood pressure was already controlled through medication. Unless their blood pressure drops unusually low, or the client asks that their medication be reduced or eliminated, most physicians may be unlikely to change their drug therapy program. Thus, despite the fact that important blood pressure decreases were achieved, most participants did not meet their original goal of having their medications reduced or eliminated.

For those participants who were on medication, but whose blood pressure was still elevated, the reductions brought their pressure

to well within the normal range. This was an obviously helpful outcome, and indicates the usefulness of the treatment as an adjunct to drug therapy.

For those few participants not on medication, there was no consistent evidence that the magnitude of their blood pressure reductions, or the maintenance of those reductions, made the treatment a viable alternative to drug therapy. However, one participant (client 6) was able to reduce and maintain her blood pressure within normal limits without the use of drugs, and for her the treatment may have been most therapeutically successful.

Apart from the physiological results, on the psychological level some important therapeutic outcomes of the treatment were achieved. In general, the traditional medical system 'induction' is that drug therapy, and thus reliance on experts and external agents, is the only way to decrease blood pressure. Most of the study participants had accepted this position, and yet were curious or still believed enough in a possible alternative to give up a considerable amount of their time to the study. The participants learned they do have the ability to reduce their own blood pressure, and that their internal state is a very important factor in their blood pressure level being either high or low. Many discovered that, regardless of the 'external' stresses and pressures, their own internal state of bodymind, and how one perceives, responds, and reacts to those stresses, can be changed. It seemed that for those clients for whom the treatment was most

helpful, important changes were reported in some key values, attitudes, behaviors and responses, particularly in work pressures and stress. Those participants for whom the program was less successful tended to view the treatment as a technique they simply needed to 'try to fit in' to their busy daily schedule. The fact that many of the participants took more responsibility for their health, both physical and mental, by the end of the program, may be one of the most important outcomes of the treatment program.

Generalizability

Population

The participants involved in this study were a very select group of healthy and highly motivated people, and are thus not considered representative of the general population of individuals with essential hypertension. It remains unknown whether similar blood pressure reductions would be found for people who smoked, were overweight, or had other health problems. Also, many people with hypertension may prefer the more passive approach of drug-taking to the requirement of attending individual sessions with a therapist and listening to a hypnosis tape daily. Ideally, a hypnosis treatment could be widely viewed and offered as an important adjunct or, in some cases, alternative to drug therapy for those who wish a more active involvement in their own health care.

Environments

Although some of the study participants reported blood pressure readings obtained on visits to their physician or at home with a blood pressure kit, readings in environments other than the treatment setting were not systematically assessed. One of the difficulties with outside readings is the unknown reliability of the instruments used, particularly of the home blood pressure kits. However, the lack of outside readings of blood pressure at other times and settings is a limitation of the study which could be overcome in future research.

Replication of the Treatment Method

The general treatment framework involving baseline measurements, individual trance training sessions, and a prepared hypnosis tape can be easily replicated. However, as the treatment is highly individualized, the replicability of the hypnotic inductions is limited. Some of the effectiveness will be influenced by each therapist's ability to develop trust and rapport, assess individual needs, resources, and experiences, and design and deliver indirect suggestions which fit for each client.

Maintenance of Treatment Effects

As previously discussed, the blood pressure reductions were generally maintained for most of the participants three months after the end of the treatment program. There did appear to be a need to continue listening to the hypnosis tape, at least once or twice a week, to keep the blood pressure low.

Limitations of the Study

In this study, most of the participants' blood pressure levels were already controlled through medication which made it difficult to assess the physiological effects of the treatment due to the 'floor effect'. Also, even when major reductions in blood pressure were achieved, unless the drug therapy program is reduced or eliminated, the therapeutic or applied significance of those reductions must be questioned. It remains unknown whether the blood pressure reductions achieved would even be maintained if the participants were withdrawn from their hypertension medication. A second limitation, already discussed, is the lack of regular and reliable blood pressure measurements outside of the treatment setting.

Suggestions for Further Research

1. A more complex research study should be undertaken by a research team made up of a physician, nurse, and psychologist/hypnotherapist. Participants could be withdrawn from any medications several weeks prior to the study period, and their medical condition regularly monitored by the team physician. A nurse could take all blood pressure readings during the study, thereby eliminating any therapist bias. The psychologist would then be free to focus on the design and delivery of an individualized treatment program. The study participants could wear an automated ambulatory blood pressure monitoring device, which would provide data on their pressure ranges in various settings and at different times of day. Such a study would provide consistent and reliable data on the possibilities of the treatment method as an alternative to drug therapy.
2. A separate, smaller study would be useful in examining the physiological changes during the trance state. This could involve a detailed analysis of brain wave patterns and indicators of sympathetic and parasympathetic system activity. Continual monitoring of these and blood pressure changes would provide data to explore at what point during a session blood pressure begins to rise, and whether the trance

state is physiologically similar to the REM state and/or the mixed discharge stage.

3. It would be useful to conduct a study in which the effectiveness of an individualized, indirect approach is compared to a traditional, direct model of hypnosis in reducing blood pressure. The specific effects of an indirect vs. a direct mode of communication need to be further explored.

Conclusions

In this study, clinically significant reductions in systolic and/or diastolic blood pressure were achieved for 11 of the 12 participants. These results provide further support of the effectiveness of hypnosis in treating essential hypertension. This study found more consistent reductions than did the previous hypnosis studies, suggesting that Ericksonian hypnosis, with its highly individualized approach and indirect mode of communication, may be more effective than the traditional, direct models of hypnosis in lowering blood pressure. The indirect approach seemed to be important in activating an individual's unconscious processes, which were somehow related to their high blood pressure. The processing of personal issues seemed to allow the bodymind system to achieve a more healthful physiological and psychological balance.

The surprising finding of a pressor effect in the trance sessions, along with a subjective experience of relaxation, raised more questions than it provided answers. It remains to future research, with more complex monitoring equipment, to shed light on this possible mixed sympathetic/parasympathetic state, or daytime REM state.

Therapeutically, the treatment program appeared to be most helpful for individuals whose blood pressure was elevated despite their being on hypertension medication. The treatment allowed them to bring their blood pressure within normal limits, without more or stronger medications. However, for one highly motivated individual, the treatment successfully served as an alternative to drug therapy.

On a psychological level, the treatment seemed to activate most participants to take a more active role in their own physical and mental state. In addition, most participants reported positive changes in their ability to relax and cope with stress, and in their sense of well-being. The spinoffs and repercussions of these changes in the longer-term cannot be assessed in this study, but are considered to be a very helpful and important outcome of the treatment program.

It would seem that four 'active ingredients' were involved in the treatment outcomes. These were: general therapy and relationship factors; physical and mental relaxation; the trance state; and unconscious processing. While many of the traditional

psychological treatments previously studied would usually involve the first two ingredients, the trance state and unconscious processing can be directly attributed to the Ericksonian model of hypnosis. More than any other approach to hypnosis, this model builds on each individual's innate ability to experience trance, and provides a context within which individuals can activate their own psychological processes in order to balance and heal their physical and mental state. For these reasons, the Ericksonian model of hypnosis may hold considerable potential for the treatment of a wide variety of bodymind problems.

BIBLIOGRAPHY

Agras, W., Horne, M., & Taylor, C. (1982). Expectation and the blood pressure lowering effects of relaxation. Psychosomatic Medicine, 44, 389-395.

Bali, L. (1979). Long-term effect of relaxation on blood pressure and anxiety levels of essential hypertensive males: A controlled study. Psychosomatic Medicine, 41, 637-646.

Bandler, R., & Grinder, J. (1975). Patterns of the hypnotic techniques of Milton H. Erickson, M.D. (Vol. 1). Cupertino, CA: Meta Publications.

Bandler, R. & Grinder, J. (1979). Frogs into princes. Moab, Utah: Real People Press.

Barlow, D. & Hersen, M. (1973). Single-case experimental designs: Uses in applied clinical research. Archives of General Psychiatry, 29, 319-325.

Barlow, D., Blanchard, E., Hayes, S., & Epstein, L. (1977). Single-case designs and clinical biofeedback experimentation. Biofeedback and Self-Regulation, 2, 221-239.

Benson, H., Arns, P., & Hoffman, J. (1981). The relaxation response and hypnosis. International Journal of Clinical and Experimental Hypnosis, 29, 259-270.

Benson, H., Beary, J., & Carol, M. (1974). The relaxation response. Psychiatry, 37, 37-46.

Blanchard, E., Miller, S., Abel, G., Haynes, M., & Wicker, R. (1979). Evaluation of biofeedback in the treatment of borderline essential hypertension. Journal of Applied Behavior Analysis, 12, 99-109.

Brauer, A., Horlick, L., & Nelson, E. (1979). Relaxation therapy for essential hypertension. Journal of Behavioral Medicine, 2, 21-29.

Case, D., Fogel, D., & Pollack, A. (1980). Intrahypnotic and long-term effects of self-hypnosis on blood pressure in mild hypertension. International Journal of Clinical and Experimental Hypnosis, 28, 27-38.

Charlesworth, E., Williams, B., & Baer, P. (1984). Stress management at the worksite for hypertension: Compliance, cost-benefit, health care and hypertension-related variables. Psychosomatic Medicine, 46, 387-397.

Cohen, D. (1979). Sleep and dreaming: Origins, nature and functions. NY: Pergamon Press.

Crasilneck, H. & Hall, J. (1959). Physiological changes associated with hypnosis: A review of the literature since 1948. International Journal of Clinical and Experimental Hypnosis, 7, 9-50.

Crasilneck, H. & Hall, J. (1960). Blood pressure and pulse rates in neutral hypnosis. International Journal of Clinical and Experimental Hypnosis, 8, 137-139.

Crasilneck, H. & Hall, J. (1985). Clinical hypnosis: Principles and applications (Second Edition). Orlando, FL: Grune & Stratton.

Deabler, H., Fidel, E., & Dillenkoffer, R. (1973). The use of relaxation and hypnosis in lowering high blood pressure. American Journal of Clinical Hypnosis, 16, 75-83.

Edmonston, W. (1981). Hypnosis and relaxation: Modern verification of an old equation. NY: Wiley & Sons.

Erickson, M. (1980). Deep hypnosis and its induction. In E. Rossi, (Ed.), The collected papers of Milton H. Erickson, Vol. 1. NY: Irvington, pp. 139-167.

Erickson, M. & Rossi, E. (1979). Hypnotherapy. NY: Irvington.

Erickson, M. & Rossi, E. (1980). The indirect forms of suggestion. In E. Rossi, (Ed.), The collected papers of Milton H. Erickson, Vol. 1. NY: Irvington, pp. 452-477.

Erickson, M. & Rossi, E. (1981). Experiencing hypnosis. NY: Irvington.

Erickson, M., Rossi, E. & Rossi, I. (1976). Hypnotic realities. NY: Irvington.

Frankel, B., Patel, D., Horowitz, D., Friedewald, W. & Gooder, R. (1978). Treatment of hypertension with biofeedback and relaxation techniques. Psychosomatic Medicine, 40, 276-293.

Friedman, H. & Taub, H. (1977). The use of hypnosis and biofeedback procedures for essential hypertension. International Journal of Clinical and Experimental Hypnosis, 25, 335-347.

Friedman, H. & Taub, H. (1978). A six-month follow-up of the use of hypnosis and biofeedback procedures in essential hypertension. American Journal of Clinical Hypnosis, 20, 184-188.

Frumkin, K., Nathan, R., Prout, M. & Cohen, M. (1978). Nonpharmacologic control of essential hypertension in man: A critical review of the experimental literature. Psychosomatic Medicine, 40, 294-320.

Gellhorn, E. & Kiely, W. (1972). Mystical states of consciousness: Neurophysiological and clinical aspects. Journal of Nervous and Mental Disease, 154, 399-405.

Gilligan, S. (1982). Ericksonian approaches to clinical hypnosis. In J.K. Zeig (Ed.), Ericksonian approaches to hypnosis and psychotherapy. NY: Brunner/Mazel.

Gilligan, S. (1987). Therapeutic trances. The cooperation principle in Ericksonian hypnotherapy. NY: Brunner/Mazel.

Goldstein, I., Shapiro, D., Thananopavarn, C. & Sambhi, M. (1982). Comparison of drug and behavioral treatments of essential hypertensnion. Health Psychology, 1, 7-26.

Goldstein, I., Shapiro, D. & Thananopavaran, C. (1984). Home relaxation techniques for essential hypertension. Psychosomatic Medicine, 46, 398-414.

Gordon, D. & Myers-Anderson, M. (1981). Phoenix: Therapeutic patterns of Milton Erickson. Cupertino, CA: Meta Publications.

Grinder, J., Delozier, J. & Bandler, R. (1977). Patterns of the hypnotic techniques of Milton H. Erickson, M.D. (Vol. 2). Cupertino, CA: Meta Publications.

Haley, J. (1967). Advanced techniques of hypnosis and therapy. NY: Grune & Stratton.

Haley, J. (1973). Uncommon therapy: The psychiatric techniques of Milton H. Erickson, M.D. NY: Norton.

Health and Welfare Canada (1980). Chronic diseases in Canada, Vol. 1 (No. 2).

Health and Welfare Canada, Statistics Canada (1981). The health of Canadians. Report of the Canada Health Survey. Minister of Supply and Services Canada.

Hersen, M. & Barlow, D. (1976). Single-case experimental designs: Strategies for studying behavior change. NY: Pergamon Press.

Hoelscher, T., Rosenthal, T. & Lichstein, K. (1986). Home relaxation practice in hypertension treatment: Objective assessment and compliance induction. Journal of Consulting and Clinical Psychology, 54, 217-221.

Holroyd, J., Nuechterlein, K., Shapiro, D. & Ward, F. (1982). Individual differences in hypnotizability and effectiveness of hypnosis or biofeedback. International Journal of Clinical and Experimental Hypnosis, 30, 45-65.

Hoskovec, J. (1967). A review of some major works in Soviet hypnotherapy. International Journal of Clinical and Experimental Hypnosis, 15, 1-10.

Jacob, R., Kraemer, H. & Agras, S. (1977). Relaxation therapy in the treatment of hypertension: A review. Archives of General Psychiatry, 34, 1417-1427.

Jacobson, E. (1938). Progressive relaxation. Chicago: University of Chicago Press.

Lane, A. & Ruskin, A. (1950). A note on the failure of hypnosis in labile essential hypertension. Texas Reports on Biology and Medicine, 8, 66-70.

Lankton, S. & Lankton, C. (1983). The answer within: Clinical frameworks of Ericksonian hypnotherapy. NY: Brunner/Mazel.

Laughlin, K. (1981). Enhancing the effectiveness of behavioral treatments of essential hypertension. Physiology & Behavior, 26, 907-913.

Leenen, F. & Haynes, R. (Eds.) (1986). How to control your blood pressure and get more out of life. Toronto: Grosvenor House Press.

Levitt, E. & Brady, J. (1963). Psychophysiology of hypnosis. In J.M. Schneck (Ed.), Hypnosis in modern medicine (3rd Ed.), pp. 314-362. Springfield, Ill: Charles C. Thomas.

Lex, B. (1977). Voodoo death: New thoughts on an old explanation. In D. Landy (Ed.), Culture, disease, and healing. Studies in medical anthropology, pp. 327-331. NY: MacMillan.

Luborsky, L., Aucona, L., Masoni, A., Scolari, G. & Longoni, A. (1980). Behavioral versus pharmacological treatments for essential hypertension: A pilot study. International Journal of Psychiatry in Medicine, 10, 33-40.

Luborsky, L., Crits-Cristoph, P., Brady, J., Kron, R., Weiss, T., Cohen, M. & Levy, L. (1982). Behavioral versus pharmacological treatments for essential hypertension -- a needed comparison. Psychosomatic Medicine, 44, 203-213.

McCaffrey, R. & Blanchard, E. (1985). Stress management approaches to the treatment of essential hypertension. Annals of Behavioral Medicine, 7, 5-12.

Morse, D., Martin, J., Furst, M. & Dubin, L. (1977). A physiological and subjective evaluation of meditation, hypnosis, and relaxation. Psychosomatic Medicine, 39, 304-324.

O'Hanlon, B. (1985). A study guide of frameworks of Milton Erickson's hypnosis and therapy. In J.K. Zeig (Ed.), Ericksonian psychotherapy, Vol. 1: Structures, pp. 33-51. NY: Brunner/Mazel.

Orem, J. & Barnes, C. (Eds.) (1980). Physiology in sleep. NY: Academic Press.

Ornstein, R.E. (1972). The psychology of consciousness. NY: W.H. Freeman.

Overholser, L. (1985). Ericksonian hypnosis: A handbook of clinical practice. NY: Irvington.

Patel, C. & North, W. (1975). Randomized controlled trial of yoga and biofeedback in management of hypertension. Lancet, 2, 62.

Patel, C., Marmot, M. & Terry, D. (1981). Controlled trial of biofeedback-aided behavioral methods in reducing mild hypertension. British Medical Journal, 282, 2005-2008.

Redmond, D., Gaylor, M., McDonald, R. & Shapiro, A. (1974). Blood pressure and heart-rate response to verbal instruction and relaxation in hypertension. Psychosomatic Medicine, 36, 285-297.

Rees, M. (1980). The complete family guide to living with high blood pressure. New Jersey: Prentice-Hall.

Rosen, S. (Ed.) (1982). My voice will go with you. The teaching tales of Milton H. Erickson, M.D. NY: W.W. Norton.

Rossi, E. (Ed.) (1980). The collected papers of Milton H. Erickson, Vols. I-IV. NY: Irvington.

Rossi, E. (1986). The psychobiology of mind-body healing. New concepts of therapeutic hypnosis. NY: W.W. Norton & Co.

Sarbin, T. & Slagle, R. (1972). Hypnosis and psychophysiological outcomes. In E. Fromm and R.E. Shor (Eds.), Hypnosis: Research developments and perspectives. Chicago: Aldine-Atherton, pp. 185-214.

Seer, P. (1979). Psychological control of essential hypertension: Review of the literature and methodological critique. Psychological Bulletin, 86, 1015-1043.

Shapiro, A. & Jacob, R. (1983). Nonpharmacologic approaches to the treatment of hypertension. Annual Review of Public Health, 4, 285-310.

Shapiro, A., Schwartz, G., Ferguson, D., Redmond, D. & Weiss, S. (1977). Behavioral methods in the treatment of hypertension: A review of their clinical status. Annals of Internal Medicine, 86, 626-636.

Snyder, F., Hobson, J., Morrison, D. & Goldfrank, F. (1964). Changes in respiration, heart rate, and systolic blood pressure in human sleep. Journal of Applied Physiology, 19, 417-422.

Speigel, H. (1974). Manual for Hypnotic Induction Profile: Eye-roll levitation method (Rev. ed.). NY: Soni Medica.

Stainbrook, G., Hoffman, J. & Benson, H. (1983). Behavioral therapies of hypertension: Psychotherapy, biofeedback, and relaxation/meditation. International Review of Applied Psychology, 32, 119-135.

Taylor, C. & Fortmann, S. (1983). Essential hypertension. Psychosomatics, 24, 433-448.

Taylor, C., Agras, W., Schneider, J. & Allen, R. (1983). Adherence to instructions to practice relaxation exercises. Journal of Consulting and Clinical Psychology, 51, 952-953.

Taylor, C., Farquhar, J., Nelson, E. & Agras, S. (1977). Relaxation therapy and high blood pressure. Archives of General Psychiatry, 34, 339-342.

Wadden, T. & de la Torre, C. (1980). Relaxation therapy as an adjunct treatment for essential hypertension. Journal of Family Practice, 11, 901-908.

Weitzenhoffer, A. & Hilgard, E. (1959). Stanford Hypnotic Susceptibility Scale, Forms A and B. Palo Alto, CA: Consulting Psychologists Press.

Wilkinson, J. (1981). Hypnotherapy in the psychosomatic approach to illness: A review. Journal of the Royal Society of Medicine, 74, 525-530.

Wolf, M., & Risley, T. (1971). Reinforcement: Applied research. In R. Glaser (Ed.), The nature of reinforcement, pp. 310-325. NY: Academic Press.

Yapko, M. (1983). A comparative analysis of direct and indirect hypnotic communication styles. American Journal of Clinical Hypnosis, 25, 270-276.

Zahourek, R. (Ed.) (1985). Clinical hypnosis and therapeutic suggestion in nursing. Orlando, FL: Grune & Stratton.

Zeig, J. (1980a). Symptom prescription techniques: Clinical applications using elements of communication. American Journal of Clinical Hypnosis, 23, 23-33.

Zeig, J. (Ed.) (1980b). A teaching seminar with Milton H. Erickson. NY: Brunner/Mazel.

APPENDICES

APPENDIX A

NEWSPAPER ADVERTISEMENTS

NEWSPAPER ADVERTISEMENTS

Folio, University of Alberta

Pilot Study - January 22, 1987 issue

Main Study - September 3 and 10, 1987 issues

HYPERTENSION TREATMENT PROGRAM

Do you have HIGH BLOOD PRESSURE?

Are you interested in participating in a hypnosis/relaxation treatment program to learn to regulate your blood pressure?

Contact Deborah Kerr at 432-5205

Edmonton Examiner

Pilot Study - February 2, 1987 issue

Main Study - September 6 and 13, 1987 issues

HYPERTENSION TREATMENT PROGRAM

Do you have HIGH BLOOD PRESSURE?

Interested in participating in a hypnosis/relaxation program to learn to regulate your blood pressure?

NO FEE

Contact Deborah at the University of Alberta 432-5205

APPENDIX B

TELEPHONE SCREENING FORM

SCREENING FORM

Name:

Address:

Phone Number: (H)

(B)

Physician:

Birthdate:

Height: Weight:

1. Do you consider yourself to be overweight?

   Have you recently gained weight?

2. When were you first diagnosed (and treated) for hypertension?

   Your blood pressure readings at that time?

3. To what has your physician attributed the cause of your hypertension?

4. Have you had any problems with your:

   kidneys (chronic kidney infection, blocked artery to the kidney)

   adrenal glands

5. Do you have coarctation of the aorta? (narrowing of the main blood vessel coming from the heart)

6. Do you have diabetes?

7. Has your high blood pressure affected your body (heart, kidney, eyes)?

8. Are you presently taking any medication to control your blood pressure?

   name

   amount/daily

   Any change in the type or dosage of medication in the previous 3 months?

9. Are you presently taking any other prescription or non-prescription drugs?

   diet pills

   cold or sinus remedies

allergy tablets

females: birth control pills, pills for menopause, any other drugs containing estrogen

10. What was your most recent blood pressure reading?

11. Do you have any other health problems at present?

12. Are you currently seeing a counsellor or being treated for a psychiatric problem?

13. Are you, or have you recently experienced any major life change (such as a physical move, separation/divorce, marriage, childbirth, death)?

APPENDIX C

TREATMENT INFORMATION SHEET

HYPERTENTION TREATMENT AND RESEARCH PROGRAM

This program has been designed to provide a treatment for people with essential hypertension, and to evaluate the effectiveness of the treatment program. As it is both a treatment and research program, a large time commitment on the part of the study participants is required. The program will involve an approximately 12 week period, from September to December, 1987. The estimated time required in each of the 4 treatment phases is outlined below.

Please be absolutely certain that you wish to take the time to participate and that you will be able to fit the sessions into your weekly schedule, prior to beginning the program. Drop-out of participants during the study will seriously limit the usefulness of both the treatment to yourself, and the research study.

The Program

Phase 1: Blood Pressure Monitoring

Purpose - to determine, over a several week period, what your usual range of blood pressure readings are. By having a before-treatment level, we can determine how effective the treatment program has been for each study participant.

Length of Phase - Approximately 4 weeks.

Sessions - 2 per week, for about 1/2 hour each session.

Phase 2: Treatment Sessions; Blood Pressure Monitoring

Purpose - to have participants experience a light hypnotic state, during which suggestions will be given concerning the self-regulation of blood pressure. To most people, this is a very relaxing and comfortable experience, requiring only that you sit quietly. Blood pressure readings will be taken before and after each session. Also, during this phase blood pressure will be monitored at 1 point apart from the actual treatment session.

Length of Phase - Approximately 4 weeks.

Sessions - A total of 2 sessions per week; 1 trance session, about 1 1/2 hours in length, and 1 blood pressure monitoring session, 1/2 hour in length.

Phase 3: Home Practice Phase; Blood Pressure Monitoring

Purpose - After you have finished the trance sessions, you will be given a 1/2 hour audiotape of a hypnosis session prepared by the researcher. You will be asked to listen to this tape once a day, for about 4 weeks. During this phase, your blood pressure will again be monitored to determine your after-treatment blood pressure level. This will be compared to the before-treatment range to assess the degree of change.

Length of Phase - 4 weeks.

Sessions - 2 per week, for about 1/2 hour each session. The format of these sessions will be the same as in Phase 1.

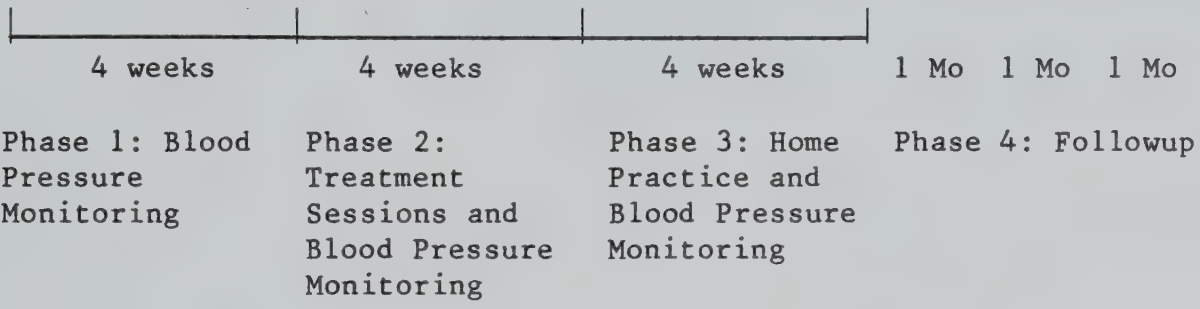
Phase 4: Followup

Purpose - to determine the degree to which blood pressure changes are maintained over time.

Length of Phase - 3 months.

Sessions - one 1/2 hour blood pressure monitoring session per month. In these sessions, 3 blood pressure readings will be taken, as well as any changes discussed such as medication, symptoms, lifestyle, diet, and so on.

Treatment Phases - Approximate Time Period



The results of this study will be used for the researcher's doctoral dissertation, and possibly for professional research articles. Strict precautions will be taken to exclude personally identifying information.

It is important that you inform your physician of your participation in this study, and obtain his/her consent. If your physician has any questions or requests information, I can be contacted at 432-5205. Throughout the program, continue to see your physician as often as you normally would. At those visits, record your blood pressure readings, as well as the date and time

of the day. Bring these records, as well as any other blood pressure readings taken at home or at your workplace, to your next session.

It is also important to continue any hypertension medication throughout the study period, unless otherwise advised by your physician.

Please read and sign the attached research permission and physician approval forms, and fill in the background information form. Bring these to your first blood pressure monitoring session. Keep this information sheet for your future reference during the study. Thanks for your interest and participation.

APPENDIX D

RESEARCH PERMISSION FORM

RESEARCH PERMISSION FORM

In connection with the treatment and research program in which I am participating, I consent that the treatment sessions involving myself may be audiotaped.

All information obtained by participating in this program will be kept confidential in accordance with good research ethics. Strict precautions will be taken to exclude personally identifying information from verbal and written statements.

I give my permission to Deborah Kerr to use the information obtained during this program for research purposes, including use for the dissertation and subsequent professional research articles.

Signature _____

Date _____

APPENDIX E

BACKGROUND INFORMATION FORM

BACKGROUND INFORMATION FORM

1. How often do you visit your physician, on the average?

2. What factors, if any, has your physician suggested may be contributing to your high blood pressure?

3. On a scale of 1 to 5 (1=not satisfied, 5=very satisfied), how satisfied are you with your physician/patient relationship?

   _____

   Comments:

4. On a scale of 1 to 5 (1=not satisfied, 5=very satisfied), how satisfied are you with your drug treatment of high blood pressure? _____

   Comments:

5. Have you, or do you presently experience any side-effects of your hypertension medication? yes ___ no ___

   If yes, type frequency

6. What factors, if any, do you think may be contributing to your high blood pressure?

7. Do you experience any symptoms that may be attributed to your high blood pressure? yes ___ no ___

If yes, type frequency (avg./wk.)

8. Do you experience any difficulties in the following areas:

	yes - frequency	no
headaches		
insomnia		
feelings of anxiety		
restless sleep		
inability to relax/unwind		

9. Has your high blood pressure affected, in any way, your relationship with your spouse, other family members, or co-workers? yes ___ no ___

If yes, please elaborate:

10. Since being diagnosed as hypertensive, have you altered your diet in any way? yes ___ no ___

    If yes, please elaborate:

11. Do you regularly participate in any form of physical exercise? yes ___ no ___

    If yes, type frequency (avg./wk.)

12. Do you presently use any relaxation or stress management techniques? yes ___ no ___

13. What are you hoping will happen as a result of participating in this treatment program?

14. On a scale of 1 to 5 (1=not effective, 5=very effective), how effective do you imagine hypnosis/relaxation will be in lowering your blood pressure? _____

    Comments:

APPENDIX F

PHYSICIAN APPROVAL FORM

PHYSICIAN APPROVAL FORM

My physican has been informed and approved of my participation in the hypertension research program.

Signature _____

Date _____

APPENDIX G

SAMPLE OF INDIRECT SUGGESTIONS

Before you begin to allow a comfortable trance state of relaxation
to unfold
Make sure you are physically comfortable.....
That you start out on your journey
From a supportive and comfortable place.
A place where you can experience the support
of your body, sinking fully and deeply into that place.
Making any necessary shifts or adjustments,
for greater comfort.

And you know that any journey
begins with where you are.
With the awareness of all those things going on around you,
sounds, off in the distance,
sensations of warmth or coolness.....
the rate... and rhythm of your breathing.....
the many sensations inside your body.....
the awareness of your muscles.....
tight, relaxed, or comfortably at rest.....

The coming and going of thoughts,
doubts, worries or concerns.....
fleeting in and out of your mind.
And you can simply watch
that coming and going
Just as you can watch the breathing in
and out of your breath.

And you really don't need
to change any of those things.
You really don't need to deepen your breathing...
to slow down the rate of the
inhalation.....
and exhalation.....

..... It doesn't really matter where
you find yourself,
where your place of security,
comfort, and relaxation
may be at any time.

What is important
is that experience of security,
support, comfort, peacefulness.....
and the knowledge that you
carry that place inside you.....
to access, whenever you wish.
At any time or place
that is helpful to you.

And you can appreciate your ability
to feel the warmth of a summer sun
on your face, arms and legs.
To feel the gentle breeze
and the sounds, far off.....
That as you walk through a forest, in the clear mountain air,
you really don't need to think about
putting your left foot in front of your right
and your right foot in front of your left,
or the swinging and alternation of your arms
in much the same way.

At your ability to be a part of,
and yet apart from
all that is going on around you.

You can marvel at the many colours, the many sounds.....
while your unconscious mind,
your whole bodymind
makes all those necessary graceful movements and adjustments.

As you begin to climb,
the deepening of the breath,
the quickening
of the beating of the heart,
the contracting of the muscles
in the legs,
the heating or cooling of the
internal temperature of the body.
And as you begin to descend,
the lightening of the breath,
the loosening and relaxing of the muscles,
the slowing
and gentle evening out
of the beating of the heart.

All of the necessary shifts and alterations
can be made, easily and naturally.....
for the overall good
of the whole bodymind.

And in the deep of the mountain forest,
you can appreciate
the many adjustments that are made,
the many shifts that are made,
easily and continually,

to keep all of the many animals,
bird, trees and plants,
in a harmonious and healthful balance.
The balancing of the natural processes,
is truly incredible.
The cycles of nature, the changing of the seasons,
the filling and widening
of the mountain streams in the springtime
to accommodate a winter's supply of snow and ice.
The natural expanding of the banks
to contain the flow, so easily and comfortably.....
and the later contracting of those banks
when no longer necessary,
to fulfill their natural function
as the water lessens and flows
gently and smoothly
with the coming of the long, hot days of summer.

And the repeating of this process
of expansion
and contraction,
the process of balancing
the input
and the output
for the greater comfort,
and balance
of the whole.

The natural cycles of growth

and expansion

of rest and contraction,

of work, and then,

in the longer, colder days

of sleep, and rejuvenation.

All are completely necessary.

APPENDIX H

HOME PRACTICE FORM

HOME PRACTICE FORM

	Practice	Medication	Notes:
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Blood Pressure Readings: Please note date, reading, and time of day

APPENDIX I

TREATMENT EVALUATION FORM

TREATMENT EVALUATION FORM

1. Do you experience any difficulties in the following areas:

	yes - frequency	no
headaches		
insomnia		
feelings of anxiety		
restless sleep		
inability to relax/unwind		

2. Since beginning the treatment program, have there been any changes made to your hypertension medications?

3. Have you discussed with your physician the possibility of changing, in any way, your drug therapy program?

4. Do you experience any symptoms that may be attributed to your high blood pressure? yes ___ no ___

If yes, type frequency (avg./wk.)

5. Since the beginning of the hypertension treatment program, have there been any changes in the following areas:

	yes - please elaborate	no
diet		
physical exercise		
work		
sleeping habits		
family relationships		
friendships		
mood		

coping with stress

recreation

sense of well-being

physician/patient relationship

6. Have you noticed changes in any other areas of your life?

7. Have you accomplished what you hoped to as a result of participating in this treatment program?

8. Have there been any other ways in which this treatment was helpful to you?

9. How effective do you believe this treatment has been in enabling you to regulate your blood pressure?

10. How confident would you be in recommending this treatment to a friend who had high blood pressure?

11. Are there any concerns you have had about this treatment?

12. In what ways could the treatment be more effective?

Any additional comments you wish to make?

B45960